

National Rural Health Association

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Executive Summary

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EXECUTIVE SUMMARY

PURPOSE

Unstable rural economies and significant changes in the health care delivery system are having a profound effect on EMS (emergency medical services) in rural areas. At a time when the need for these services in rural areas is increasing in importance, the fabric of the system appears to be weakening in some areas. Emergency medical services (EMS) is a recognized essential community service and must be preserved.

This study examines selected services in three states to identify barriers to the development and operation of EMS systems in rural areas. In the process, it has also identified common characteristics which were found consistently in the most successful and prospering services.

This study also suggests action steps to address the problems of EMS in rural areas.

BACKGROUND

The primary purpose of EMS is to reduce human suffering and economic loss resulting from premature death and disability due to accidents and sudden illness. EMS as a system concept began in the late 1960's when federal legislation addressing this need was enacted. In the 1980's federal responsibility for EMS initiatives was shifted to the states, resulting in a dramatic drop in the level of support for EMS. Today, states are beginning to increase funding levels for state planning and development efforts in EMS. However, rural needs are not always adequately addressed by these plans. Further, local rural governments often do not have the resources to fund EMS activities nor the "know how" to organize them.

Rural services have always been largely dependent on volunteers. As a result of population shifts and economic conditions in rural areas, many of the volunteers, who in the past have developed and operated rural EMS services, are being lost from the manpower pool and are not always being replaced. Several studies indicate volunteers may be leaving the ranks of rural EMS providers because of escalating training and recertification requirements which are placing excessive personal time and financial commitments on volunteers.

As health care delivery services decline in many rural areas, especially through hospital closures and loss of physicians, the availability of EMS becomes even more critical. EMS is truly a "safety net" public service which must be supported and maintained. It is often the only primary care available to citizens in rural communities.

RESULTS

This study confirms what has already been shown by other projects and workshops on rural EMS and identifies a few additional issues which have not been previously considered.

The primary problems identified in this study which continue to plague rural EMS include inadequate public access, extended response times, lack of public education, shortage of volunteer personnel, limited available training opportunities, absence of strong medical control, inadequate funding and lack of a coordinated systems approach.

The difficulties in providing EMS services in rural areas must be recognized. Alternatives for the provision of the service must be designed in a manner which ensures a quality system while addressing the needs of the unique rural environment. States must create a context for services to function within, which can help them overcome the problems mentioned above.

A number of common characteristics were identified as being strong contributors to the success of rural EMS services. A strong community need and social fabric, integration of sound business practices into the volunteer organization, admission criteria for volunteer members, participation and commitment of community leaders on the service, strong physician involvement and good interagency relationships were noticeably **present** in the rural services experiencing the most success.

ACTION PLAN

Federal, state and local initiatives, both public and private, need to be developed to address the problems of rural EMS delivery systems. Appropriate involvement by each level of government needs to be identified. The federal level should fund research and demonstration projects and help speed technology transfer and sharing of successes. The state level generally regulates EMS and must do so in a manner that supports and facilitates local successes. Unquestionably, local governments have to become more involved and committed to EMS in their communities.

Improved methods for sharing of resources from the metropolitan areas to the rural communities needs to occur, in such areas as planning, education, emergency transportation, printed resource materials and recruitment tools.

Innovative alternative methods for the provision of EMS in rural communities need to be developed. These EMS **delivery** system models must be designed to provide EMS in a **manner** which improves patient outcome (morbidity and mortality). Data collection systems must be **implemented** to track patient outcomes and **measure** the results of the delivery system.

Funding sources and adequate reimbursement for EMS is critical. It must be recognized that, just as with our postal service, there are areas of our country, due to isolated location, low population density and inadequate economic base, that will have to be subsidized. A method for identification of these areas and a funding source has to be addressed. Several states have earmarked

funds from annual motor vehicle registrations or surcharges on moving violations to help finance EMS activities. Incentives to encourage volunteer participation in the system must also be considered.

We are presented with some difficult but exciting challenges. Solutions must be responsive to local needs. The people at the core of rural EMS are ready to accept the challenge. The leaders within the communities can initiate the process to improve the community's motivation and skills in tackling problems. But to arrive at final solutions, the future of rural EMS depends on an interactive approach by all sectors of society.

Chapter 1

Introduction

INTRODUCTION

Emergency medical services (EMS) saves lives. Some estimate that injuries and deaths can be cut by as much as 15% - 20% with a well organized system. (26) Yet, some of the critical service delivery aspects which have been shown to increase the chances of survival for emergency medical and injury conditions, such as 911 access, advanced life support, and hospital based emergency care resources, are absent in a number of rural **communities.**(22,26)

Until the last decade, the federal government has been a vital source of funding for the development and progress of EMS across the country. But in the last ten years there has been a shifting of the federal responsibility in EMS to state and local **governments.**(26) Although some states have met the challenge with leadership, funding, technical assistance, instructive training programs and systems coordination, many have not.

During this last ten years, rural economies have experienced severe problems. Although there is a vast diversity in the economic status of rural counties, in general, rural governments are often financially unstable and, therefore, have a lower capacity to fund programs for EMS than do urban **areas.**(7)

With over 40% of rural hospitals operated by government **agencies,** they also are adversely impacted by this **instability.**(7) In 1986 54% of hospital closures were in rural areas. (19) When rural hospitals close, the hospital based component of EMS is lost.

When the availability of primary health care services decline in rural communities, EMS providers are called on to **assume** a broader **role.** This compounds the existing problems **experienced** by rural EMS including fragmented systems, a shortage of EMS providers, difficult access to training, problems with aging equipment, inadequate public access and lack of local physician medical **direction.**(8,20,22)

There is increasing evidence that rural EMS is experiencing difficulties. This study has been undertaken to **identify** and evaluate the specific barriers to the development and operation of EMS services in rural areas. It focuses on the issues of funding, personnel, training, communications, medical control and **system** coordination.

BACKGROUND

An organized approach to Emergency Medical Services (EMS) began in the late 1960's when the federal government enacted the 1966 Highway Safety Act to provide direction for states to set standards and **regulate** EMS. This Act also provided highway safety grant funds to buy **equipment** and train **personnel** across the nation. The passage of this Act was in response to the publication of the famous document, "Accidental Death and Disability: The Neglected Disease of Modern Society," which identified deficiencies in providing adequate emergency care in this country.

In 1973 the development of regional systems to coordinate EMS were encouraged by the enactment of Public Law 93-154, the Emergency Medical Services Systems Act. This program ended in 1981 when it was folded into the Preventative Health and Human Services block grant program.

During the intervening years, since the inception of the block grant program, more of the financial responsibility for EMS has fallen to state and local government. Under the block grant program, EMS has had to compete at the State level with six other programs: health incentive, urban rat control, hypertension, ~~flouridation~~, health education risk, reduction and home ~~health~~ care. Initially, this policy change resulted in a dramatic drop in funding levels as much as 34% of original levels, as documented in six states studied by the United States General Accounting Office (26) Although states are now reversing the downward funding trend of the 80's, levels are still not back to where they were when the federal block grant program was initiated.(22,26)

In spite of federal spending cutbacks for EMS, the urban population and resource base, through local taxes and privatization initiatives, has allowed continued expansion and improvement in the EMS system. Gains have been made in such areas as E911(a universal telephone emergency access number which allows dispatchers to identify the location of the caller), transportation (ground and air ambulances), training. (EMT-Intermediate and Paramedic), board certification of emergency physicians, and trauma system development.

Rural EMS has not achieved the same level of advancement. This can be attributed to several factors. The cost of providing emergency care in rural areas is relatively more expensive than urban areas due to sparse populations covering large geographic areas. State and local governments in rural areas have a lower capacity to fund programs through taxes. Failing rural economies often have difficulty maintaining the public infrastructure and responding to change@) Neither do rural communities have the volume and profit potential to operate private sector EMS services, when the public support system is absent.

Today, as a result of increasing evidence that rural EMS is in trouble, various initiatives are being evaluated by federal and state government and independent organizations.

* In March 1989 the National Rural Health Association sponsored a "National Rural EMS Needs Workshop" in San Diego to identify the most critical nation wide needs in rural EMS.

* In May 1989 The Department of Transportation (DOT) and The Office of Technology Assessment (OTA) sponsored a "Rural EMS Workshop in Washington, DC.

* In September 1989 The American College of Surgeons invited a number of professional medical groups and national organizations, interested in Rural Health and EMS issues, to a meeting in Washington, DC to provide input to their proposed

trauma legislation and its impact on rural areas.

* The National Advisory Committee on Rural Health has identified EMS as one of their focus issues.

* Senate Bill 15 (Senator Cranston) as passed by the Senate Labor and Human Resources Committee in late February 1990 provides for 15% of \$75 million dollars to be set aside for emergency medical services in rural areas.

* House Bill 1602 (Representative Bates) provides for \$8 million dollars to be used for rural training, continuing education and demonstration projects.

EMERGENCY MEDICAL SERVICES DEFINED

Emergency Medical Services (EMS) can be defined as the resources used to deliver medical care to those with an unpredicted immediate need outside a hospital and continued care once in an emergency facility.(26)

Although EMS Systems (EMSS) function differently, depending on geographic location and population served, there are thirteen (13) recognized essential elements which should comprise all systems:

*** An advisory council on emergency medical service** (*An advisory or decision making leadership group which has as its role fact finding, planning, coordinating and advising on the development and operation of the EMS system within a given community or region.*)

*** Physician-directed medical control, including quality control review** (*Usually one or sometimes a group of physicians who oversee the care given by the pre-hospital personnel. including the provision of written standing care protocols and orders, voice contact for direct orders for certain advanced procedures, and review and critique of care given to the patient with outcome information).*

*** EMT training programs, including continuing education programs** (*This element includes the initial training and certification of pre-hospital and hospital care personnel and ongoing education programs to maintain competency in skills and knowledge and to provide information and training in new skills and technology).*

*** Instructor training programs** (*This refers to training programs which must be provided to train instructors in adult education techniques and in course material which they in turn reteach to their students).*

*** A communications system, including system access** (*This element consists of the radio and telemetry equipment used to dispatch the emergency personnel and provide for communication between pre-hospital and hospital personnel, and allow interagency communication in the field.*

*** Dispatch center(s)** (*This refers to a centralized control entity which ties the system together. It includes 24 hour telephone or other access methods (ie: emergency call boxes. CB radio) which the public*

must be able to access to call for emergency response. Ideally, there is a universal access number such as 911 which the public calls to initiate an emergency response. The dispatch centers coordinates the emergency response of the appropriate personnel and vehicles to the scene of the emergency, including police, fire, ambulance, rescue groups, and hospitals). Emergency Medical Dispatchers are trained beyond the scope of dispatching to be able to give medical instructions to the caller while the emergency personnel respond to the scene.)

- **Ambulance Service(s)** *(This refers to the vehicles which must be available to respond with appropriate personnel and equipment to handle the emergency on the scene and then transport the patient to an appropriate facility for further care. First response fire or medical vehicles take personnel and equipment to the scene and provide initial care to the patient, but do not transport. Ambulance units respond to the scene, provide patient care and transport the patient. Emergency response units may be manned by personnel who are trained to give care at various levels, including first aid, first responder, basic, intermediate or advanced life support. Response vehicles can be by ground and/or air. In unique areas it can include boats, ATVs-all terrain vehicles, and other special terrain vehicles. Law enforcement personnel are also important members of the response team.*

- * **EMT and emergency department personnel rapport and trust** *(A close working relationship is required to effectively transfer patient information and provide continuity of care between the field personnel and the hospital personnel. Both groups must strive to be knowledgeable and respectful of each team member's role in caring for the patient).*

- * **Reports and records** *(Written reports and records are required to document and transfer all aspects of the emergency call and patient care. They are further used to evaluate the patient care and other issues surrounding the call, such as response times. Thirdly, they are required for legal reasons.)*

- * **Disaster plans** *(This element is important so that all agencies are prepared to work together cohesively when the demand for emergency resources outstrips those which are usually available. Mock disaster drills and training must be carried out regularly.)*

- * **Public information and education programs** *(The public must be educated in the proper use of the emergency medical system and basic first aid techniques to follow.- ie: when and how to call and what to do until the emergency personnel arrive.)*

- * **Categorized hospital emergency capabilities** *(This refers to development of a system for identification of a hospital's capabilities for treating patients, so that patients can be transported directly to the most appropriate hospital rather than delaying emergency care by taking a patient to a facility that cannot adequately handle the emergency.)*

- **Funding** *(The method /or funding this essential community service must be determined and must be in an amount adequate to make the service accessible to the entire community.)*

RURAL DEFINED

There are many definitions of rural. For purposes of this study rural is defined as those areas falling outside a metropolitan statistical area. (Metropolitan statistical areas (MSA), as defined by the US Census Bureau contains a city with at least 50,000 or an urban area with a population of at least 50,000 and a total metropolitan population of at least 100,000).(7,13) Rural and non-metropolitan will be used interchangeably.

There are areas of this country that are even more isolated and less populated than what is envisioned when we speak of rural. These areas can be defined as frontier and having less than six (6) persons per square mile. Frank Popper, a demographer at Rutgers University, using this definition, has determined that 394 counties and 45% of the United States land area falls into the frontier category.(12) The frontier areas have even more unique characteristics and require different service models from the more populated rural communities, and therefore, will also be addressed in this study.

The distinction between rural and urban has purposely been kept simple, because the primary goal of this report is to evaluate rural EMS, not define the many variations of rural locations and populations. It is recognized that there are many degrees of rural. On a continuum, rural spans those areas that are "least rural," (those that are adjacent to and within commuting distance to large metropolitan areas) to those that are "most rural," (those wilderness areas that are even more scarcely populated than frontier, such as are found in Alaska) . It is recognized that each of these areas have their own unique economic profile and availability of resources relative to their proximity to metropolitan areas.

" 'Rural' " actually reflects a state of mind. It is a relative concept, a perception of distance from needed services. Rural health care, then, is characterized by fewer resources, greater distances, smaller scale organizations and a somewhat slower pace and intensity of services delivered."(27)

Chapter 2

Rural EMS A Different Environment

RURAL EMS: A DIFFERENT ENVIRONMENT

There are a number of characteristics which have been identified as unique to rural areas and the rural health care system. Low population densities, long travel distances, hazardous terrain, poor roads, limited financial resources, underserved medical manpower areas and few hospitals are some which come readily to mind and are cited frequently in the **literature.(2,6,12,18,21,22,)**

This Chapter will give a brief overview of the significant characteristics of rural areas and the rural health care system which impact the availability and delivery of emergency medical services.

DEMOGRAPHICS

Rural populations are generally older, poorer, less educated and not as healthy as urban dwellers **(13,23)**

In recent years, while the rural population has increased in absolute numbers, it has decreased as a proportion of total population from 50% in 1920 to 25% in 1984. **(7,19)** Declines and slowing growth rates are being seen in a number of counties, but most particularly in areas where mining and manufacturing is the economic base.(z) Retirement communities saw a 2.6% growth rate between 1979 and **1984.(13)**

There is a greater number of people in the "under 17 and over **65**" age groups living in rural communities. Fourteen percent (14%) of the rural population was over 65 versus eleven percent (11%) in the urban areas in **1986.(7)**

Data shows that rural residents have 10.9 years of formal education as compared to 11.6 years for urban residents.(m)

Rural jobs often pay low wages to underemployed individuals. The median rural income, which continues to decline, has dropped from 80% to **73%** of the urban income level.(m) This is particularly noticeable in farming, mining and manufacturing **counties.** The 1984 average per capita income was \$10,000 which was only 71% of the urban average. Eighty five (85) of the eighty six (86) **persistent** poverty counties are in rural **areas.(13)** In 1985 18.3% of the rural population fell below the federal poverty level.(z)

People living in rural areas are more likely to work in hazardous occupations such as farming, mining and the timber industry. They are often without regular healthcare due to absence or difficult access to services and a general reluctance to seek preventative care. Many rural residents are without health insurance, with estimates as high as 17% uninsured.(13) Rural populations suffer more from chronic illnesses such as diabetes, cancer, high blood pressure, kidney and lung disease.(7) Death rates are higher among rural populations for hypertension, cerebral vascular accidents (31% higher), arteriosclerosis (34% higher) and auto accidents (68% higher).(19,23) The crude death rate in non-metropolitan areas is 13% higher than metropolitan areas.(23)

Independence, conservatism and parochialism are characteristics commonly attributed to rural residents.(x) There is also a high level of volunteerism, which is the backbone of many services in rural areas that, in larger metropolitan communities, are supported by public funding sources. In rural communities, there is a voiced and observed reluctance to accept federal or private funds to assist with programs, if the restrictions interfere with the local community's ability to decide for themselves what they need and want. Decision making is often troubled by a high degree of public opinion, political infighting and lack of a strong organizational structure.

PROBLEMS EN RURAL EMS

Economic and geographic realities are the basis for the majority of problems in rural EMS. Small population sizes limit privatization initiatives. Large geographic areas limit timely discovery of and quick response to emergencies. An unstable economic base restricts funding levels. Increasing work and family responsibilities limit volunteer hours and resources which can be spent in EMS.

The demographic and economic changes in rural areas which have been discussed are having a profound impact on communities' abilities to maintain essential emergency services in **their** communities. It is obvious that when a rural hospital closes, hospital based emergency care (and often the local physician) is lost. What may be less evident are some of the more specific problems associated with maintaining the pre-hospital care component of EMS.

The top seven problems for rural EMS, as identified by a national survey conducted by the National Rural Health Association Rural EMS Task Force, in association with the National Association of State EMS Directors and Georgia Southern College's Center for Rural Health included:

- * recruitment and retention
- * financing
- * training
- * communications
- * trauma care systems
- * optimal standards
- * medical control.

The Office of Technology Assessment in their "Special Report on Rural Emergency Medical Services," identified the following as specific problems of rural EMS systems:

- * transportation delays due to sparse, dispersed populations and poor or absent roads
- * antiquated communications equipment and lack of universal access through 911
- * radio "dead spots" and crowded radio frequencies
- * shortages of pre-hospital care providers, lower levels of training and lack of training opportunities

- *low volume of calls, difficulty in maintaining skills and lack of innovative teaching strategies
- * lack of trained physicians to supervise EMS in rural areas
- * aging ambulance and medical equipment and lack of air ambulance transport in some rural areas
- * lack of advanced training for hospital based physicians and nurses; no clearly defined role for the rural community and hospital within regionalized EMS systems
- * lack of resources to address the problems.

It is apparent from the previous discussion of health statistics of rural residents and the problems of EMS delivery, that rural America may not be the healthiest place to live. It could further be concluded that rural residents could benefit from more health care services in their **communities.**(7) But therein lies the difficulty. Providing these beneficial services becomes difficult in the face of a poor economic base, a scarcity of hospitals and limited payment **sources.**(24)

Solutions to these identified problems must be found if we are to maintain essential emergency medical care services in our rural communities.

Chapter 3

Study Objectives, scope and **Methodology**

STUDY OBJECTIVES, SCOPE AND METHODOLOGY

Emerging evidence indicates that the future of rural EMS is in jeopardy. The Office of Rural Health Policy has commissioned this study to evaluate the specific barriers to the development and operation of EMS in rural areas. The report focuses on the specific issues of:

- * adequacy and stability of funding for EMS services from public subsidies, private insurance, medicare, charitable donations, subscription services, etc.
- * availability of skilled volunteers or paid staff to manage and operate EMS systems.
- * availability, cost, and quality of training opportunities for EMS technicians and staffs.
- * availability and adequacy of emergency communication systems.
- * coordination of services between EMS providers, hospitals, and other rural health providers.

Information for this report has been obtained through literature review, surveys, personal interviews, site visits, and personal knowledge and experience in emergency medical services and rural health care since 1972. Sources on a national, state and local level have been used. Literature review provided the basis for a synopsis of the federal role in emergency medical services, demographics and current health status of rural populations, and, most specifically, the provision of emergency medical services in rural areas.

The primary focus of this study was to select **three** existing rural EMS systems for study. The systems were to reflect the **diversity** of rural EMS in terms of ownership, sources and stability of funding, size of the communities served, local topography and other unique parameters seen as impacting the **success** or **failure** of the system.

Systems, as defined by the thirteen **elements** outlined in Chapter 1, often do not exist in rural areas. Also, there are vast **differences** in the EMS **services** within states and **even** adjoining communities and counties. Therefore, several **services** within each state were **chosen** in order to provide a comparison between services which were surviving and **prospering** and those which were struggling or failing. It was felt that this approach would provide **the** most information to assist in **the identification** of those factors which contribute to **success** or **failure**.

To assist in the site visit process and the collection of information, a survey instrument was developed. The instrument was also useful in assisting site coordinators in identifying individuals to meet with and in collecting information prior to the site visit.

Three states were chosen for study:

- * Nevada
- * Washington
- * Alabama.

It should be noted that all three of these states have relatively modest state support for EMS compared to national **averages**.⁽¹⁷⁾

Tonopah, Nevada provided an opportunity to evaluate an EMS system in an isolated frontier area and one which is in a government installation and mining area.

The rural areas north and south of Spokane, Washington were chosen because they represent two distinctly different rural EMS services and types of communities immediately adjacent to a metropolitan area.

The Alabama three county area was chosen because of the extreme differences in the level of services in the three adjacent rural counties.

Each area visited was evaluated for the following areas of impact:

- * demographics
- * funding
- * agency organizational structure
- * agency personnel
- * communications
- * training
- * medical control
- * EMS system design.

Individuals who were consulted included:

- * director(s) of EMS agencies
- * local fire department personnel
- * local police officials
- * local dispatching agencies
- * medical director of the EMS agency
- * state EMS director
- * hospital administrator of primary referral center
- * emergency department director of primary referral center
- * key physician(s) of primary referral center
- * local public officials
- * local **sample** citizens
- * tertiary hospital personnel
- * **personnel** from othc interfacing agencies.

The primary goal was to identify those factors which contributed to the success or failure of the EMS service and to look for commonalities from which to draw conclusions and make recommendations.

Chapter 4

Central Nevada A Frontier System

Central Nevada EMS Region: A Frontier System

DEMOGRAPHICS

Tonopah, the nucleus of the Central Nevada EMS System, borders the eastern side of the Nellis Air Force Range and Nuclear Testing Site, at the junction of Nye and Esmeralda Counties. This frontier town is an isolated community, with the next largest communities being Reno to the North and Las Vegas to the South, both being approximately a four hour drive away through jagged mountains, desolate alkali flats and valleys covered with sagebrush and rabbit brush.

The Central Nevada EMS Region covers slightly less than 21,742 square miles, which is the entire land mass area of both Nye and Esmeralda Counties. The 1988 estimated population for both counties is 17,000 which is less than 2 people per square mile.

Even though Tonopah has a population of only 4500 permanent residents, during the week the influx of workers to the test site swells the population to as many as 11,000.

In addition to federal government installations and local and state government offices, other business activities of the area include primarily ranching, mining and oil drilling. It is a poor area with the average per capita income for the two counties being \$10,519.

EMS SYSTEM DESIGN

According to the local volunteers, the EMS system has grown out of local need, interest and election year agendas. The younger, transient population, employed at the mines and government installations, has no significant interest level in EMS, either for supporting it or participating as volunteers. A central group of permanent residents maintain the services.

There is a Central Nevada Regional EMS Council which was formed some fifteen years ago to serve as an advisory board to the State EMS Office. It has now become the contractor for state funded EMS training programs in the four county central region of the state. The council membership is comprised of individuals from Tonopah and the surrounding communities. Mineral and Lincoln counties and southern Nye county, by choice, do not participate on the Council.

The State EMS Department maintains an office in Tonopah, staffed by an EMS Field Representative. Relationships with the area EMS providers are maintained through regular site visits and phone contact. Although there are no formal outcome studies conducted, this local office does collect run reports from the area ambulance services.

The State of Nevada has recently passed legislation which regulates the trauma center designation process and limits the number of hospitals which may be designated in each category.

LOCAL AGENCY ORGANIZATION STRUCTURE

The seven ambulance services, located in Tonopah, Beatty, Dyer, Silverpeak, Goldfield, Round Mountain, and Currant, are county owned and operated by volunteers. Nye County has an Administrative Director responsible primarily for funding and purchasing functions. The part time Emergency Management Director of Esmeralda County is responsible for the overall operation of the Esmeralda County services. Each service selects its own volunteer coordinator, a position which is sometimes confirmed by the Board of County Commissioners.

All services are volunteer and informal in structure, with few if any by-laws, job descriptions, or formalized duties and responsibilities. There is no consistent manner for selecting officers of the volunteer organizations. Some are appointed as needed, others are elected yearly by the membership. Frequently, the person who objects the least is selected to fill the position.

The ambulances operate with a minimum of one EMT-basic and an attendant. Many of the units operate with EMT- intermediates. While there may be a minimum of two people on the unit, there may be as many as four attendants on board.

Ambulance services and fire departments providing intermediate level care are licensed by the State Health Department. There are no county regulations. Personnel are also licensed by the State.

COMMUNICATIONS, RESPONSE AND TRANSPORT SYSTEM

The universal emergency number 911 is available in the Tonopah area. The 911 system cost is prohibitive in other areas due to sparse populations. These areas use seven digit emergency numbers and telephone stickers are widely distributed to advertise these numbers. Once found, an emergency may take 15 to 30 minutes to be reported. Once a telephone operator is reached, further delays occur because there are two major phone systems covering the area, with long distance routing of numbers.

Generally, the radio communications network is good, with only a few blind spots. All EMS units and personnel have VHF (very high frequency between 30 and 300 MHz)) Highband 2 way radios to communicate with dispatch, law enforcement and fire services. A system of mountain top repeaters (capture the signal and relay it to another site) belonging to the sheriff's department is used to increase the coverage of the radio system. All EMS units also have UHF (ultra- high frequency between 300 and 3000 MHz) 2 way radios that operate on the EMS frequencies assigned by the FCC (federal communications commission) for communication to the hospital. A system of mountain top repeaters maintained by the State Health Department allows communications with a hospital from almost all locations in the area. Additionally, a microwave connection with the EMS mountain top sites allows communications with the major hospitals in Reno and Las Vegas from most locations along the two major highways US 95 and SR 376.

Emergency dispatch is performed by the county sheriff department, the hospital, the Tonopah Fire Department, and one mine security section. There is some duplication of dispatch capability between these agencies. Dispatch procedures vary from agency to agency and in reality from dispatcher to dispatcher. Few dispatch policies and procedures exist. Law enforcement views dispatch of EMS units as "additional duties" which they do as a favor. There is no emergency medical dispatch training for the dispatchers.

There is direct communications with the local hospital from all EMS units in all but about 5% of the geographic areas. Utilization of the hospital/pre-hospital communications network is hampered because of lack of training for hospital personnel on proper procedure. Also the nurses at the hospital are unable to hear the radio if they are away from the nurse's station.

There are seven ambulance locations in the region which respond to approximately 500 calls per year. The two Tonopah ambulances handle about one half of these calls, with 40% involving a rendezvous with air ambulance. Because of the extreme distances to Reno and Las Vegas, no ground transports are done outside the area. Statistics are not available from the services, but general estimates say there are more medical than trauma calls, which is a change from years past, when trauma related calls ranked highest.

In Tonopah, the fire department provides first response on most medical and all trauma calls. In the rest of the outlying areas, first response and transport are handled by the ambulance and local law enforcement. The ambulance locations (Tonopah, Beatty, Dyer, Silverpeak, Goldfield, Round Mountain, and Curren) have been placed in population centers at the urging of interested groups who are willing to staff the vehicles.

Response times within the core communities can be as few as 6 - 7 minutes. In the more outlying areas response times average 20 minutes. Highway accident response times of 40 minutes or longer are not uncommon. One third of the service area is off the road. There are no four wheel drive response units. Volunteers have to go on foot or borrow four wheel drive vehicles from citizens. Many times there are areas which are totally uncovered or response must come from neighboring communities.

There are no formal interagency mutual aid agreements. The working relationships are very dependent on the individuals who participate as volunteers at any given time and their knowledge of the adjoining services and personnel.

The only area hospital, Nye General, is the receiving facility for all patients. After initial treatment and stabilization, patients requiring further care are transferred via air ambulance, usually to Reno. The referral patterns have changed over the past 2 years from Las Vegas to Reno for two primary reasons. The physicians currently practicing at Nye General know and relate to physicians in Reno and, secondly, the Reno air service will transport patients without requiring prior payment. (During the last several years, the Las Vegas air service has started to require guaranteed payment

before transporting a patient).

PERSONNEL

There are approximately eighty (80) active volunteer personnel with the seven (7) ambulance services and one fire rescue unit in the area. Most of these are in the 20-30 year age range. About 60% of the volunteers are EMT basics, 35% are EMT-intermediates and 5% are ambulance attendant trained. Of the total volunteers, Tonopah has 28 volunteers, 15 of which are steady volunteers. There are 12 **EMTs** associated with the Tonopah Fire Department. Smoky Hill has 60 registered **EMTs** of which only 12 are active.

There are no formal recruitment programs. Promotion of the EMS services, courses, and need for personnel is all word of mouth. Turn over of volunteers is high due to the young age and transient nature of the population in the area. Historically, volunteers were professional people. Now the majority of them are blue collar workers.

New members are **buddied** with an older member of the group and are usually given a trial period of performance. **Members** remain part of the group until they choose to quit. The only screening process which members are subjected to is that which is done by the State Health Department as part of the licensing process.

There is no program in place to assist volunteers with stress management issues.

Generally there are sufficient numbers of personnel to staff the EMS services. However, periodically, all agencies experience a shortage of personnel.

Volunteers in Esmeralda County receive a small hourly stipend while on an **emergency** call. Nye County volunteers **receive** a flat \$15.00 reimbursement for each **ambulance** run they make. Esmeralda County volunteers are paid \$7.68 per hour while on a run. Volunteers are provided with uniform jackets or shirts from **service** funds. They are also eligible for medical benefits **under** the State Industrial Insurance System. **The** mines, in an effort to support the local EMS system, give **\$.25** extra per hour in pay to **those** workers who are active **volunteers** with **the** local EMS service.

Some services **provide** the training free for their **newrecruits** in **exchange** for a **number** of **service** hours. It **becomes** difficult to **collecthowever**, if a volunteer receives the **free** training and then does not complete his **service** hours for the organization.

Ambulance volunteers are **scheduled** for specific shifts to **respond** to **emergency** calls, usually during **timeswhenthey** are not at work. In many families, both **the** husband and wife work and usually during **the** daytime hours. There is increasing difficulty with **coverage** during this time.

While **somearea** (Silver Peak and Round Mountain) employers support their volunteers by permitting them to respond from work on emergency runs, other employers do not. There has been no

formal effort initiated to seek employer support of the EMS volunteer who may be required to make an emergency run while at work. The increased volume of calls is beginning to impact the production of the mines when volunteers leave to respond to calls. There is a fear that their willingness to let workers leave for calls will end soon. It is interesting to note that the State of Nevada Department of Transportation allows their employees to leave work for fire calls but not for EMS calls.

Volunteering requires many hours and is a family affair in this area. Families encourage each other to get involved as a way to spend time with each other. The EMS service becomes an intricate part of their lives and social time together. In spite of this, the average length of service for a volunteer in the area is three years. Volunteers interviewed stated that burnout from calls, time commitment, paperwork, recertification requirements, and out of pocket expenses incurred are the biggest reasons which causes volunteers to quit.

TRAINING

Training is scheduled around agency needs. Approximately 150 people are trained each year. CPR, First Responder, EMT-basic and EMT-intermediate initial and refresher courses are available locally and are coordinated by the Central Region EMS Council, which provides the training for the area. Instructors usually volunteer their time, but **occasionally** are compensated by State Health Department or the Department of Traffic Safety funds.

Basic EMT certification requirements include successful completion of the DOT (Department of Transportation) curriculum course and a passing grade on the State written and practical examinations. Recertification may be achieved by successfully completing a 20 hour refresher program every two years or earning 100 points through attending a variety of EMS programs **over a** two year period.

EMT-Intermediate certification requires successful completion of a **40-hour** course and clinical time sufficient to demonstrate skill proficiency to the sponsoring physician. Intermediates are trained in mast trousseurs, intravenous therapy, esophageal and endotracheal intubation. Evidence of skill review and a **statement** of sponsorship by a physician must be submitted to the State offices every 6 months and also **every** two years at the **time** of EMT-basic **recertification** as a **requirement** to maintain Intermediate status. Currently, Intermediate **personnel** must **travel** to Reno or Las Vegas for their clinical skills training.

An additional training **burden** has **recently been introduced**. Hazardous Material training is now required by **federal agencies** but no funding has **been provided** to obtain it. **Because of the few numbers of people involved** in emergency response in the area, hazardous **materials** mock exercises are not **eligible** to be counted toward the hours of required training. There are **three** major hazardous **waste sites** in the region: **The Federal Test Site** outside of Tonopah, **The Hazardous Waste Disposal** at Baetty, and the **Arsenal Depot** in Hawthorne

The State is currently evaluating the possibility of adding the use of cardiac drugs and defibrillation to the skills for **EMTs**.

MEDICAL CONTROL

Medical direction by a physician is not required for basic **EMTs** to perform patient care activities. But because a number of the area volunteers are EMT-Intermediates, medical control is required. An EMT-Intermediate must have direct voice contact with a physician who gives him specific orders before he may perform the advanced level procedures in which he is trained. . Medical control for the Central Nevada area is provided by the physician and his four associates that provide coverage at the Nye General Hospital emergency room.

There is no formalized program in place for supervision of the **EMTs**. The physicians interact with the **EMTs** when patients are brought to the emergency room. Chart reviews are done as required for the skill review documentation of the **EMT-Intermediates**. Regular reviews of run reports and quality assurance guidelines are not in place. Patient outcome studies are not conducted.

The medical director for the services is not paid and the level of activity depends on the individual physician.

TERTIARY HOSPITAL RESOURCES

Nye General Hospital is the only hospital facility in the North Central region. It is a primary care facility with local surgeons on staff. There are 21 acute care beds, 4 swing beds and 24 long term care beds.

Because there are surgeons locally, compound fractures and abdominal trauma are cared for in Tonopah. The nursing staff for surgery and OB are on call. Head injuries of any significance are transferred out to Reno, usually to **Washoe** Medical Center. Physicians are trained in Advanced Cardiac Life Support and Advanced Trauma Life Support. Nursing staff are encouraged to be trained in Advanced Cardiac Life Support, but since most of the nursing staff is per diem, it is not required.

Outreach support from tertiary centers is minimal. **Washoe** Medical Center and St. Mary's in Reno provide some education programs in rural areas and they facilitate clinical rotations for EMS personnel. They provide follow up information on patients they receive from Tonopah.

No routine transfers are done because of vast distances. Critical patients are airlifted out.

FUNDING

Funding for the Central Nevada EMS System comes from public sources through County government, under the Department of Social Services. No further demands are placed on the local communities to support EMS through donations or fundraisers, except to occasionally meet a specific need. A tax on brothels helps Nye County to support EMS. The State and County have funds to cover all expenses except physician services for patients injured in highway accidents.

A big complaint voiced by the Tonopah area volunteer services was that the fire service and the big cities get most of the funding, both federal and state. They recommended that impact studies be conducted and methods developed for resource sharing between the community and the government installation site, especially when communities, such as theirs, are impacted by providing public services to the government workers who commute to and from the site.

All the ambulance companies bill for their services, some more successfully than others. Personnel have no training in proper procedure for **medicare** billing and no training in billing and collection techniques. No collection rates are available from the services. Charges are usually based on mileage and the use of oxygen.

The County provides the equipment for the EMS service and the gas for the vehicles. Any monies which are not used by the County is lost back to the general fund if it is not used. There is no equipment replacement fund.

There is no funding from the state for operational costs associated with The Central Nevada EMS Council. This year 30 individuals were trained by the Council. There is a small amount of money available to instructors for travel expenses and occasionally to help with instructor certification costs.

The State EMS Budget is **\$.38** per capita which compares favorably with the national median per capita state budget figure of **\$.38**. The national average State EMS Budget of \$1.67 per capita in 1988 is not a good figure to use because it is skewed due to some very high (over \$10) per capita budgets in a few areas.

Chapter **5**

Spokane,
Washington

Metro Rural

Spokane, Washington: Metro Rural EMS

DEMOGRAPHICS

Deer Park

The eastern plains of Washington are dotted with streams and rivers, low mountains and rolling farmland. Approximately 25 miles north of the outer edges of the city of Spokane lies the little town of Deer Park. Deer Park is a quiet town of about 3,000 people in the city itself, with another 5,000 in the immediate zip code area of the town. The industry in the area includes dairy farms, agriculture, recreation, mercantile and logging businesses. There are numerous lakes and public recreations areas connected by 2 lane highways and dirt roads. The area's two major highways have one of the highest death rates in the state. The further north one travels, the more sparsely populated the area becomes.

Spangle

Spangle is a tiny town tucked in among rolling farmland hills, located about 20 miles south of Spokane. There are 230 people living in Spangle and 1500 in the service area. Originally, the town sprang up because of the railroad, but now it is essentially a poor blue collar bedroom community with no industry. Only the northern part of the service area, closest to Spokane, is growing. Most of the residents of Spangle are older retired persons. There is no hospital or physician in the area.

Deer Park and Spangle are both in Spokane County, which has a per capita income of \$11,237. The two counties to the north, Pend Oreille and Stevens, which are in the Deer Park service area, average about \$9400 per capita income.

EMS SYSTEM DESIGN

Deer Park and Spangle are part of a nine county Eastern EMS Region which is the largest in the state, covering approximately 15,000 square miles. Seventy percent of the eastern EMS region is serviced by volunteers. (Nania) In the region there are 57 licensed ambulance and first aid vehicle services, 1600 certified pre-hospital care providers, and 19 hospital facilities. It typically will take over one hour for forty percent of emergency patients in the State of Washington to reach a hospital emergency department, primarily due to the rural geography of the State.

The administrator of the Eastern EMS region works throughout the region to provide assistance and resources in developing EMS services and to apply standards established by the State law. The regional office participates heavily in political campaigns for levies and bond issues to support EMS. The office also supports a quarterly newsletter for EMS agencies, hospitals and Medical Program Directors in the region. In addition to the administrator, the regional office is manned by one secretary.

EMS grants available through the state are based on regional and local planning efforts organized through the regional offices. In

years past, the bulk of funding dollars have been allocated to the western regions of the state. This year, for the first time, the eastern region was very successful in obtaining funding for their area. This is mostly the result of the increasing influence of rural areas which has resulted in better needs identification, decentralized decision making and a new formula/block grant process.

The influence for state EMS legislation and initiatives has, historically, evolved from the western part of the state. But today, much of the proposed trauma legislation is strongly influenced by activities being developed in the eastern region, most specifically in Spokane.

The eastern region conducted a "scientific" study which demonstrated that the standards and requirements for advanced life support skill maintenance were unnecessarily high. The results of this study were used to design new statewide standards which more adequately addresses the levels of training and experience necessary to maintain proficiency.

The Eastern Region was also the innovator of what is now a statewide funded mobile training program. It was initiated in 1987 as a three year pilot project to address rural EMT attrition and difficulty in obtaining quality continuing medical education. The program is funded entirely by the State and provides training in over fifty rural communities under a contract between the East EMS Region Training Council and the Department of Health. The Training Council is a non profit tax exempt organization. With passage of the trauma legislation, this training concept will be expanded to include hospital personnel training programs.

Other innovative programs include a computer aided 16 hour instructor program which is in the research and development stages. Currently, the eastern region is conducting a study project for a pharyngeal tracheal lumen (PTL) airway device to demonstrate that EMTs can safely perform advanced airway techniques.

The East EMS Region is also involved in working with two other regions of the state to create a comprehensive communications development plan which will address problems caused by distance, terrain, out-moded technology and inter-agency communications.

Although trauma is the focus of **current** legislation, it **provides** a strategy for further **development** of the entire system of EMS in the state. Issues **addressed** by the legislation include: community based education for pre- hospital personnel and the public, a **statewide** communications system, facility designation and support of rural hospitals, formal transfer protocols, local/regional planning efforts and data collection. It outlines a more formal structure which will strengthen relationships between hospital and pre-hospital services. There is also a specific mandate to address the special needs of rural areas. Implementation of the entire plan is scheduled over a four year period at a cost of \$2.5 million dollars.

Generally, there appears to be good inter-agency cooperation and coordination on a formal and informal basis. Steadily declining revenues to the tax supported fire districts, which provide first response on EMS calls, has encouraged the development of formal mutual aid agreements. This is important because there are many different fire departments and districts in the service area. There are two private ambulance services in Spokane.

Spokane County has a locally funded EMS office which supports the activities of the Medical Program Director for the County. In the early days, the focus of this office was confined to the city of Spokane, but now the focus is becoming more county wide. There appears to be excellent rapport between the agencies and this office.

There are no formal medical control relationships between the ambulance services and hospitals in the area. The hospitals have provided clinical and didactic training of pre-hospital personnel since 1973.

LOCAL AGENCY ORGANIZATION STRUCTURE

Deer Park Ambulance

Deer Park Ambulance is the oldest service in Eastern Washington, incorporated in 1948 as both a fire department and ambulance service. The nonprofit organization serves an area of 450 square miles, covering parts of three counties with a widely dispersed population of over 30,000.

Article II of the Incorporation papers reads, "to render voluntary service to the Town of Deer Park, Spokane County, Washington, in maintaining a fire department, and furnish ambulance service on a non-profit and charitable basis in the community." The fire and ambulance service each have their own boards. The ambulance organization is directed by a President, Vice-President, Secretary/Treasurer and a Member-at-Large who are elected by a membership majority vote. All members are volunteers on the service. There is a paid office manager to handle billing and daily operational items.

Spangle Rescue Squad

The Spangle rescue squad is part of the incorporated city fire department. The small one vehicle **department** was expanded to include the rescue squad in **order** to shorten the response **time** for **emergency** care in **the** community. **Ambulance** transport **services** for the community are **provided** out of Spokane and response **times** are usually a minimum of 20 - 30 minutes. A three man crew responds in **the** city of Spangle and within a 10 mile radius to **provide** more **immediate** care of **patients** until arrival of **the** ambulance.

The EMS Director is elected for a two year term by majority vote. New members to the rescue squad must first become firemen and then complete basic first aid, first responder or EMT training.

COMMUNICATIONS, RESPONSE AND TRANSPORT SYSTEM

Enhanced 911 (universal emergency access telephone system which allows the dispatcher receiving the call to identify the location from which the call is being made) is available throughout Spokane County. Stevens County currently has 911 in those areas where Spokane County telephone exchanges overlap the county lines. A levy has been passed to complete 911 service in the county by 1991. The outlying areas, especially around the northern lakes have a multitude of emergency access numbers. In some of the more remote areas, citizens must walk or drive to neighboring homes to have access to a telephone. In northern Stevens County there are no names on the roads and no maps to assist in finding locations. Sewer numbers are sometimes used to help locate a rural location. Volunteer knowledge of local landmarks is often critical in finding an emergency location in this area.

The central **E911** dispatch center is in Spokane. Pagers, portables and ambulance radios all are adequate to allow for unit to unit communications and communications with the hospitals.

Deer Park Response and Transport

The Deer Park Ambulance responds to an average of 800 calls per year, accompanied by fire department first response **teams**. Police respond selectively on calls requiring their assistance. Ambulance response times range from two minutes to as long as fifty minutes to the more remote northern areas of the service area. The fire department is in charge of all EMS scenes.

It is rare that a patient will be transported to the local hospital in Deer Park, even for initial stabilization. The local hospital is privately owned and has difficulty maintaining adequate hospital emergency **services**. There are three hospitals in Spokane to which patients are transported, the most frequent one being Holy Family in the north area of Spokane.

Transport to Spokane is primarily by Deer Park Ambulance. If the patient's condition is critical and weather conditions appropriate, one of two emergency air services out of Spokane will respond and transport the patient. The air services are dispatched on a rotating basis so as not to show favoritism. If ground transport of a critical patient is required, the **paramedic** level Spokane Ambulance will rendezvous with Deer Park and assist with the care of the **patient**. There is an additional \$75 charge from the Spokane Ambulance to the **patient** when this **type** of transport occurs. Although **volunteers** who work locally are usually permitted to **leave** their jobs to respond on emergency calls, there are occasions when there is a shortage of volunteers during the day. The Spokane Ambulance also provides daytime coverage for transport during these times of shortage.

It is estimated that 40% of the ambulance calls are trauma and 60% are medical. There is extremely heavy traffic in the Deer Park service area on the weekends, when Canadian citizens travel to Spokane. Highway accidents, recreational and logging incidents comprise the biggest portion of trauma calls. None of the hospitals

in Spokane are designated trauma centers.

Spangle Response and Transport

The Spangle Rescue Squad responds to approximately 30 calls per year. Their service area covers 50 square miles in and around the city, including one major highway. In the town of Spangle, both the fire and EMS personnel respond to medical calls. In outlying areas, only the rescue vehicle and EMS personnel respond. Patients are transported to one of the two downtown Spokane hospitals by an ambulance which responds to the scene from Spokane. As with other areas, air transport is used for critical patients, weather permitting. There is a county wide plan for mutual aid between the services.

PERSONNEL

New members are recruited to the organization through word of mouth by other volunteers. They must complete an application and interview process, followed by successful completion of a training program after which they are accepted into the organization by a membership vote.

Currently there are 30 members with a median age of 34. Membership is fairly stable with 7 members remaining with the organization for five years or longer and the rest with membership status for anywhere from seven months to four years.

To remain with the service they must attend a defined number of meetings, maintain adequate EMS test scores, meet patient care criteria and correctness of organizational procedures both internally and externally. It is considered a privilege to belong to the service. Many of the volunteers are also highly visible local officials and community leaders.

The ambulance personnel are all trained as **EMTs**. Nineteen of them also have training in heart monitor/defibrillation, four have intravenous therapy skills and 10 are also CPR (cardiopulmonary resuscitation) instructors. The Deer Park Ambulance **EMTs** are also participating in a pilot project for a new type of airway which incorporates some of the benefits of both esophageal airways and endotracheal tubes.

Fire Department personnel are primarily trained in the state certified first responder course. About half of them are EMTs. It is required that fire dispatchers be first responders as a minimum.

Ambulance volunteers are paid a **stipend** of \$10 (\$15 for daytime hours Monday through Friday as extra **incentive** for personnel **shortage times**) per 12 hour shift, \$5-\$6 for each run and \$5 for waiting time at the hospital. They are also **given** \$5 toward a meal after six continuous hours of runs.

The **certification fee** for EMTs is \$85 and is not waived for volunteers.

Volunteers must pay for their own training. The service does

reimburse them for the cost if they complete the course successfully. They are scheduled for 12 hours shifts. It is becoming more and more difficult to find volunteers who are able to cover the daytime hours Monday through Friday.

Spangle Rescue Squad

Currently, there are fifteen EMS personnel with three basic first aiders, eleven first responders and two EMTs who respond on rescue calls. The average age of the volunteers is 30 years. During the day there are only a few personnel who are available to respond to calls. Due to work responsibilities, it is difficult to recruit new personnel for the day shift. An average of three persons per year are trained but only one stays with the service. Spangle covers the cost of training for their volunteers.

Volunteers are paid a small stipend on which they are required to pay income tax. The service pays FICA and social security on all volunteers.

There is no screening of volunteers. Anyone interested is recruited.

There is a Critical Incident Stress Debriefing Team out of Spokane which is available to provide support to agency personnel on request. This program is funded through the Spokane Fire Department,

TRAINING

EMT basic training follows the Department of Transportation curriculum. Recertification requires thirty hours of continuing education over a three year period. A minimum of six hours per year are mandatory, with four of those hours consisting of didactic, one hour of CPR and one hour of extrication training. Volunteers with Deer Park and Spangle receive their initial EMT course training, both didactic and clinical, in Spokane, where courses are given twice a year. Continuing education is obtained by attending conferences, which must be given by a senior EMT instructor or a physician to be accepted for credit.

First Responder training in Spangle is taught by local department personnel and paid for by the State Fire Service Training fund. First responder recertification requires fifteen hours of continuing education every three years to include three hours of CPR and three hours of extrication training.

Effective in 1990, twenty four hours of hazardous materials training is now required. This adds another additional requirement in addition to the ones previously listed. Volunteers are now also receiving additionally required training on communicable diseases.

The physician who serves as the State Trauma Advisory Committee Chair and the Spokane County Emergency Medical Services Director, is very committed to rural EMS. His opinions are helping to shape the course of EMS in Washington. He wants to evaluate the

benefits of training EMS personnel from rural areas in more technical intervention modes. He is of the opinion that the current training curriculum spends too much time and too many resources training EMTs in didactic information and not enough time in developing the skills which they need to truly save lives. The excessive requirements for training is discouraging both new and existing volunteer recruits.

MEDICAL CONTROL

Deer Park

The Deer Park Ambulance service has an excellent medical control program. Their medical director is a board certified emergency physician who works at Holy Family Hospital in north Spokane. He travels to Deer Park every month to do chart review and run critiques. The EMTs may function under standing orders for defibrillation, intravenous therapy and transport. For other activities above the basic level they must be in voice contact with a physician for orders. Orders are usually received from a physician at the hospital receiving the patient.

The medical director's position with Deer Park is not funded by the hospital, although they receive most of the patients from the Deer Park area. The physician has volunteered to take on this responsibility. The hospital provides minimal follow up information on patients, usually only when asked.

Spangle

At one time there was an ear, nose and throat specialist physician who worked with the Spangle service. He had to curtail his activities with them because of an increase in his malpractice rates, due to his involvement. Now, there is no medical advisor for the service and no direct physician involvement of any kind. The service uses the Spokane County policies and procedures as medical operating guidelines for the care they provide. Medical incident reports are sent to the central Spokane EMS office every two months, but there is no direct patient follow up or critique of calls.

TERTIARY HOSPITAL RESOURCES

There are three major hospitals in Spokane, two of them with flight programs; neither are dedicated trauma centers. In general, the hospitals provide only minimal outreach support. The support that is provided is primarily in the area of didactic training for pre-hospital and hospital personnel. Emergency room, critical care unit, air transport and intravenous therapy clinical rotation opportunities at the hospitals, outside of initial clinical training, are limited. It was reported that they are very reluctant to provide this continuing education experience due to liability issues. Holy Family Hospital, on the north side of town is the most actively involved in providing clinical opportunities and education programs. No quality assurance programs or equipment/ supply purchase or replacement programs are in place between the hospitals and the ambulances.

FUNDING

Deer Park

Deer Park Ambulance is self funded through billings, collections and donations. Because the town is very supportive of the ambulance service, housing for the ambulance is donated to the service. The local hospital also provides personnel assistance in billing. Currently, the collection rate is at 60%. This is expected to improve, as the billing process is being computerized.

While additional money would allow the service to do more, it is surviving on the current financial resources at its disposal. Discussions are taking place to recombine the fire and EMS service under one board to allow the EMS service access to the tax based funds from which the fire service operates.

Spangle

Spangle raises about \$1000 a year from donations, grants and community fundraisers. The city originally purchased the fire and rescue trucks. Grant money from the State of Washington was used to purchase the medical equipment. Now the rescue truck and equipment needs to be replaced, but the city is in financial trouble and has no funds for replacement. This past year the income was \$1650 to cover expenses of \$3700. Spangle, although it is in Spokane County, receives no funding from the County.

The State of Washington budgets **\$.34** per capita for EMS which is slightly less than the national median average of **\$.38** per capita.

Chapter 6

East Alabama **EMS**

Overcoming **the**
Barriers

East Alabama EMS: Overcoming the Barriers

DEMOGRAPHICS

This study site covers a three county region located at the foot of the Appalachian Mountains, along the eastern border of the state of Alabama. It is highly rural, comprised primarily of national forest land and farms. Rugged heavily wooded areas, gentle rolling hills, and winding two lane roads create the lay of the land. Anniston, a town of 30,000 is the coordination hub for the East Alabama EMS System. Birmingham is located 60 miles to the west of Anniston.

The chief industry in the area is forestry, textiles, rubber and steel fabrication, poultry, and coal mining. Generally the population is older, less educated and at a lower income level than the rest of the State.⁽²¹⁾ A 1980 study of morbidity and mortality rates in the State showed East Alabama death rates higher than the state averages for neonatal emergencies, acute cardiac problems and accidents.

EMS SYSTEM DESIGN

The State of Alabama is divided into EMS Regions which are structured as independent corporate entities. The regions receive their funding directly from the State Legislature rather than through the State EMS Office.

The State EMS office sets standards for training and certification of EMS personnel and licensure of EMS ambulances. Alabama is just beginning their trauma center designation process. Currently there is a legal battle between some of the regions and the State EMS office over implementation of EMS rules without proper procedure or input from the regions.

East Alabama EMS is governed by a sixty-four member Board of Directors with a paid staff of five persons. The regional offices provide extensive training programs, equipment procurement and maintenance for the services in the area. They promote EMS activities such as installation of 911 systems. They write guidelines and protocols for the agencies and have assisted with the implementation of a sophisticated radio communications network.

Thirty eight percent of the emergency medical services in the state of Alabama belong to the Alabama Association of Rescue Squads. These rescue squads existed long before there were State or Regional EMS offices. They are a politically powerful group and have received an exemption from the State EMS rules and regulations. Many of them, however, voluntarily comply with State standards.

There are small services located in almost each community in this area. They each function a bit differently but most are very loose organizations which operate independently of each other and without formal planning for use of available EMS resources. Many of them are struggling to survive and are maintained only through the efforts of several key individuals. There is little evidence of

local government support for these services. The majority of county EMS councils are inactive and those who are still functioning serve local interests, and have no regional planning function

LOCAL AGENCY ORGANIZATION STRUCTURE

Cleburne County

Cleburne County covers 561 square miles with a population of 13,200 and a per capita income of \$87 17.

There is one ambulance which provides basic level emergency service to the entire county, except for a small area in the northeast, which is serviced out of Georgia. The service is financed by the County, manned by volunteers and operated out of the nursing home located in the town of Heflin. At the time of the site visit in the late fall of 1989, the County had just acquired the hospital from a leasing company. By the end of February, 1990, the acute care portion of the hospital had closed and the future of the ambulance service is now uncertain.

The service personnel are all women. The director of the service maintains the assignment schedule and performs run reviews, but does not have a strong leadership role. It was reported that the service suffers from conflict among the volunteers because of a lack of structure and formalized leadership.

EMS is not given priority in this county. There is no promotion of the service and there is no evidence of community pride in the service. The members themselves related that derogatory comments are often made by male community members and other emergency response personnel to the effect "that the women should not be out on the streets doing this kind of work."

Clay County

Clay County sits southwest of Cleburne County. Clay County has the lowest per capita income of any of the areas with an average of only \$6829. Clay County covers 605 square miles with a population of 13,400.

Clay County is serviced by a rescue squad, with multiple vehicles at strategic locations throughout the county. The squad has a long history of volunteerism in the community. The structure of the organization is very formal, with strict guidelines for admission to the squad. There is a waiting list of fifty people who wish to join. Many members are community leaders and it is considered a privilege to belong to the squad. Individuals are elected by the membership for the positions within the organization. The service has a superb reputation for quality and is an integral part of the community. It is totally volunteer, the service is free and is funded entirely by donations.

Coosa County

Coosa County, the most southwest county, covers 657 square miles, with 11,500 people and a per capita income of \$9033.

Two EMS services in Coosa County were visited. Goodwater, a town of 2,000 experiences about 3 runs per week. The service is maintained because of the commitment of one family and a few friends.

The little town of Rockford has one ambulance manned by a mother and son. The ambulance is progressively out of service for longer periods of time due to lack of manpower. The local County Administrator encouraged this woman to maintain the service. However, she is not permitted to leave her county job to respond to calls, and other county personnel and officials do not participate on the service as volunteers.

COMMUNICATIONS, RESPONSE AND TRANSPORT SYSTEM

Police provide emergency dispatch for these counties. Emergency numbers are a combination of 911 and seven digit numbers which are often long distance. Fire department personnel and vehicles do not routinely respond to emergency calls unless requested. Law enforcement responds first to an accident scene and dispatches the ambulance or rescue squad only if needed.

Communications equipment consists of the VHF system, the statewide HEAR (hospital emergency air radio) system and pagers. The communications network was felt to be adequate by the service personnel in the area.

Although no firm statistics were available from the services, a majority of the EMS calls were said to be patient transfers to other hospitals. These transfers represent significant problems for the volunteer services. Patient transfers occur primarily during the day, when volunteer manpower is at its lowest. The service representatives indicated that the shortage of personnel is becoming more acute, and occurs primarily during the daytime hours, as more individuals commute out of the local area to work.

There is informal mutual aid among the services to back each other up for emergency calls. The Alabama state law allows the patient to determine where he wishes to be transported, regardless of distance. The services gave no evidence of having restrictions or limits on where their service would transport in order to maintain coverage in their service district. There were no statistics on the frequency that the service area was left uncovered due to a transport occurring outside of the service area.

Patients from Cleburne County are transported to Anniston. Clay County transports to the one hospital within their county, to Anniston, and on occasion to Birmingham. Coosa County transports patients into adjoining counties, east to Alexander City or north to Sylacauga. Air service response comes from neighboring Georgia or from Birmingham when needed.

Cleburne County makes about 45 runs **per month**. **No statistical breakdown was available**. **Clay County averages about 90 runs** per month with sixteen percent emergency runs and thirty percent of runs involving trauma. In **Coosa** County, the town of Goodwater experiences about 48 runs per month and **Rockford** calls average about 8 per month. No data on type of runs was available for **Coosa** County.

Response times in these counties can be from as little as a few minutes to as long as one hour, especially on calls occurring in the national forest land, which is a designated wilderness area with no motorized traffic.

Cleburne and **Coosa** Counties have ambulance response vehicles which respond from a single location. Clay County boasts at least 6 ambulances, 6 rescue vehicles, **ATVs** (all terrain vehicles), boats and a bus. The ambulances and rescue vehicles are strategically located throughout the county, parked and left unlocked, ready to respond with the local volunteers.

The longest patient transport time is about 45 minutes, except for the extremely remote national forest areas, where it is longer.

PERSONNEL

Cleburne County

There is one ambulance housed outdoors at the hospital. It is usually staffed with one EMT and one first aider. Personnel are scheduled at their convenience. There are a total of five EMT basics, one EMT-Intermediate, and one EMT-paramedic. The service is having a great deal of difficulty recruiting additional volunteers. The men in the community do not want to participate because currently all the volunteers are women. The culture of this area does not see this type of activity as appropriate for women. The economic conditions require that many people work several jobs and they simply do not have the time or resources to give to the service. Additionally, many residents commute which makes them unavailable for day time coverage.

The current volunteers are young, in their 20s. There is a continuous turnover of personnel. They feel if the service paid more they would be able to recruit more volunteers.

Volunteers are paid out of the County Hospital budget. They receive \$1 hour on call and \$15-\$20 per run. The volunteers also receive employee benefits through the hospital which **includes** health insurance, dental insurance and sick leave and holiday pay.

Clay County

Clay County has 90 active **volunteers**, with 24 having intravenous **therapy** skills. There is a waiting list of 50 individuals. All **volunteers** are **men**, young and old, who are **leaders** and, as described by one member, "good upstanding" community members.

The first application from a woman has just **recently been** received. **The service** is not sure what **the outcome** will be.

Most of the volunteers are basic level, with a few intermediates and paramedics. Due to the high number of volunteers, they are scheduled for active duty only every several months.

There is no payment to the volunteers for their participation in the squad. The cost of training is covered.

Coosa County

There are six volunteers in Goodwater and two volunteers in the town of Rockford. The populations are older and the majority commute out of the area for work. Recruitment of volunteers in recent years has been unsuccessful. The services are still there due to the persistence of a few individuals who are a close knit group of family and friends. There is no payment to the volunteers..

TRAINING

The cost for a basic EMT course is about \$400 and follows the Department of Transportation curriculum. Initial training is provided through the community colleges and continuing education through East Alabama EMS or the community colleges and hospitals. Continuing education requires 8 hours per year for basics, 10 hours per year for intermediates and 15 hours per year for paramedics. No testing is required for recertification. Initial certification costs for basics is \$15 plus \$25 for the national registry test. The recertification cost is \$15 every three years. These fees are not waived for volunteers. Personnel are sometimes already trained when they join the services. Otherwise, tuition is usually covered by the service for new recruits. The services either pay directly for the training or reimburse members for the cost of tuition.

MEDICAL CONTROL

Several years ago, East Alabama EMS developed standard operating procedures and treatment protocols for the services in their region. To solidify a strong medical control network, they further attempted to develop a system of medical control centers by assigning each ambulance/rescue service to a specific hospital for 24 hour physician command, for evaluation of EMT performance in the field and for continuing education. The EMS agencies were, in many instances, assigned to hospitals which were out of their immediate service area. This design forced **EMTs** and physicians who were not familiar with each other to work together. The system never worked because of resistance from both volunteers and physicians. The **volunteers** did not wish to bypass their local chosen medical advisors and interact with physicians they did not know. Neither did the emergency physicians in the designated hospitals want to **take** responsibility for directing individuals whose skill and knowledge levels they were unfamiliar with.

Cleburne County

There is no medical director for this service. (It is not required for

basic level services.) Run sheets are reviewed by the EMT Director of the service and this is felt to be sufficient. They follow the protocols of the region with no medical input.

Clay County

This service has very strong medical control from a physician in the local community. Standing orders are used extensively in caring for patients. Calls are reviewed regularly with EMS personnel. The rescue squad is closely aligned with the local hospital.

Coosa County

There is no medical control for the two services visited in this county. In each community the local physicians (only 2 in the county) were interviewed as to their involvement. Neither has any official capacity and did not express a great deal of confidence in the personnel. It is understood that “they do the best they can with what they have” but that often isn’t enough. Many times the physicians call the paramedic level services from neighboring areas to transport the patients because of the lack of training and skills of the local EMS personnel. There is no hospital in this county.

TERTIARY HOSPITAL RESOURCES

The standard for the region is that the hospital receiving the patient provides medical direction and gives orders to the pre-hospital personnel, if they are needed. Follow up is provided on patients by the hospitals on request.

Overall, most of the area referral center hospitals provide minimal outreach support to these EMS services. Anniston has the largest medical facility in the area. Attempts have been made to provide outreach services. These were dropped several years ago when the assigned medical control concept failed.

The hospital facility in Clay County has a very strong relationship with the rescue squad personnel. The hospital is in the process of incorporating the rescue squad’s quality assurance program with the hospital’s quality assurance activities. The hospital also provides clinical training opportunities for members of the rescue squad.

FUNDING

Cleburne County

The ambulance service is funded by the County, under the hospital budget. Patients are billed for mileage, supplies used and a base rate of \$80 for non emergency runs and \$100 for emergency runs. Expenses run more than revenues. Collections are reported to be poor but no statistics were provided. No fund raising activities are conducted.

Clay County

This service has been incorporated into the daily fabric of the community. All services they provide are free. They do not **solicit** donations or have fund raisers. The majority of the churches in the area include the rescue squad as a line item in their budgets and automatically send money periodically to the rescue squad. They also receive funds through bequests and endowments. They have an abundance of personnel, equipment and money.

Coosa County

These two services get minimal funding from the County. They bill for services but collections are poor. They are part of a several county consortium to support EMS, but funds have not been provided for several years. Goodwater reported that they receive \$2000 a year from the County and they bill **\$200-\$300** per month.

Alabama's state EMS budget is **\$.10** per capita, which is the fifth lowest funded state in the union for EMS activities.

Chapter 7

Conclusions

Conclusions

This study has evaluated rural EMS (emergency medical services) systems in three states. It is evident that each rural community has its own unique problems to overcome, but there are some generalities which can be concluded about EMS in rural communities.

Some barriers, such as early discovery of emergencies and quick response times in extremely isolated areas, do not lend themselves to easy remedies. Other issues, such as recruitment and retention of volunteer personnel, access to training and medical control can be addressed.

This study has confirmed findings of other studies and workshops which have identified the same critical issues in developing and sustaining quality EMS in rural areas. In addition, it has also identified some common characteristics of successful rural EMS services and systems.

ISSUES

The most common and persistent issues which hinder the development and operation of rural EMS, as identified through this study are outlined below.

Continued absence of a national or even state wide universal toll free access telephone number, as identified in previous studies (24,26), continues to be a barrier to providing quick response to emergencies in rural communities.

Unavoidable long travel distances extend the response time of personnel to the scene and the provision of initial emergency care to the patient beyond what we know are life saving limits (ie: the first golden hour following an emergency when the patient is most likely to survive if he receives appropriate emergency care).

Inadequate mapping and numbering systems for roads and residences in rural areas further delay response to the scene.

Lack of organized public education programs, especially without universal access, is a major deterrent to rapid access of the system.

Inadequate vehicles (ie: typical ambulance configuration versus I-wheel drive and all terrain vehicles) for the type of terrain traveled create difficulties in reaching patients.

The shortage of volunteer personnel for the rural services is becoming more severe. The problem is most critical during daytime hours when volunteers commute for work to adjacent metropolitan communities or work at companies which no longer can afford to let their employees leave the job to respond to emergency calls.

Limited access to training, cost and an increase in educational requirements are deterrents to recruitment and retention of volunteers. A study conducted in Birmingham confirmed that outmigration of EMT volunteers is often due to the time commitment required. The study found that 30% of volunteers left the service because of training

and recertification requirements, while 28% left to have more time with their family.

Limited or non-existent community hospital resources increases the likelihood of volunteer EMS personnel operating without medical control. When medical control is present, it most often is provided by primary care physicians who have a limited understanding of their role as medical directors of EMS.

Limited emergency training opportunities for hospital EMS personnel hinders the local hospital's ability to adequately care for emergency patients. The availability of general emergency care education programs, advanced cardiac life support and advanced trauma life support courses will improve the ability of rural hospital personnel to care for emergency patients and make appropriate referrals.

A lack of outreach support from tertiary resource hospitals denies rural hospitals and providers important resources and limits the ability of rural hospitals and EMS personnel to function as an integral part of the system.

Advanced life support levels of care in the pre-hospital setting, which is shown to have the greatest impact on improving mortality and morbidity rates, is absent in most rural communities.

Inadequate reimbursement for emergency care and transportation threatens the financial stability of rural agencies. It is also reducing the willingness of emergency air services to transport patients from rural areas.

Local governments often do not recognize emergency medical services as a priority funding issue in their communities.

Rural governments lack the financial resources to adequately fund EMS.

Rural EMS agencies are almost entirely volunteer. They lack necessary management training and skills to build a strong infrastructure within their organizations.

Opportunities for developing alternative sources for funding from within the community are not often pursued by rural EMS services.

FACTORS OF SUCCESS

In an attempt to go beyond identifying barriers, this study has also identified common attributes which were present in those rural EMS services that were experiencing the greatest success.

Community Based Need: The successful services began with community wide support for their activities and in response to a specific need around which the entire community could rally. In contrast, while the less successful services had similar needs, they were started by one or two individuals rather than by a wide base of individuals from the community.

Admission Criteria: Club status created by admission criteria adds

value to membership in the EMS service. Since not anyone can gain admission, it becomes an honor to belong. This gives people the desire to join and creates an aura of quality about the organization. When respected community leaders are volunteers for an organization, it adds additional credibility.

High Visibility: Keeping the service in the public eye makes the community continuously aware of the service provided and the value to citizens. Promotion and public relations activities should be ongoing through word of mouth, in the local newspaper, and through activities with other community service clubs,

Strong Medical Control: The most successful services were also the ones with strong physician involvement and medical control. These same services were viewed by peers and the community as providing excellent medical care and were well respected for their work.

Interagency Cooperation: Success breeds more success. Strong interagency cooperation and relationships were found in all the successful services. In areas where these relationships were formalized, a cohesive system with a strong infrastructure existed.

Formal Organizational Structure: A strong formalized organizational structure was found in the most successful services. Viability and continuity of the volunteer service organization is enhanced by a strong infrastructure.

Sound Business Operation: Using sound business principles, such as budgeting, billing, collections, marketing and data collection increase the financial success of the organization. These things increase the professionalism of the organization.

Personal Success: The most successful services had high levels of participation by individuals who have achieved success in their own personal and business lives. These individuals bring strong management and organizational skills to the volunteer organization which improves its chances for growth and prosperity.

Cohesive Community Environment: Communities which have the most successful services are also communities with vitality. They look for innovative ways to deal with the problems they face, they enjoy where they live, they **feel** that they are lucky and **they get** involved to keep their community a good place to **live**.

All of these characteristics feed upon one another. The more of them that are present in a community, the more chance for success of the EMS system. Clay County, Deer Park and Tonopah provide examples of how poor rural and frontier areas can overcome the barriers and build excellent EMS services. Clay County, in particular, provides an excellent example of how one of the poorest areas in the country can build a service which is thriving and which has an abundance of financial resources.

Special Note: It is important to note that in this particular study, communications and equipment needs did not surface as major problem areas for many of the services. This may be due to the basic level of care provided by these services and the lack of medical control resulting in a minimal amount of radio communications between the EMS personnel in the field and the hospital. Communications become more of an issue when there is an adequate medical control system that directs advanced life support capabilities in the pre-hospital setting.

Chapter 8

Implications for Policy Decisions

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Implications for Policy Decisions

Maintaining and enhancing the health of this country's rural emergency medical services presents a challenging opportunity. There are some difficulties encountered in delivering services in rural areas which do not lend themselves to easy apparent solutions. For instance, overcoming the delay in discovering accidents in remote areas or in traveling through adverse weather conditions may be problems that do not have remedies. But, there are a number of identifiable deficiencies that do have solutions. Throughout the nation there are exemplary programs addressing many of the problem areas identified in this study. More effort needs to be expended in sharing the successes in order to minimize the failures. There will always be areas that go into crisis. State and local government needs to provide a strong support system to prevent crisis and to overcome it when it happens.

In this chapter, suggestions for actions to develop, sustain and enhance our rural emergency medical care systems are proposed.

1. There is a critical need for research programs to identify the essential elements of successful EMS models in rural areas. Demonstration projects are needed to implement these models in target areas with a documented need. Areas where rural hospitals have closed should be targeted for such demonstrations.
2. Federal, state and local initiatives need to recognize that there are some rural areas which will always require subsidies. Cooperative initiatives between federal, state and local government should be developed to find alternative methods for financing EMS in these areas.
3. Programs are needed to develop educational materials and otherwise assist in the recruitment and retention of volunteer members of rural EMS agencies. Local initiatives and planning efforts need to be carried out to plan for manpower needs.
4. Medicare and Medicaid reimbursement policies need to be evaluated to ensure adequate payment rates for emergency services and transport.
5. In designing and implementing state programs for the development of trauma and EMS systems, funds could be earmarked specifically for rural areas to ensure their inclusion in the system. Any new federal funding initiatives could make this a requirement for federal funds.
6. Federal and state programs for EMS should be designed to require that States address the specific needs of rural areas. Solutions need to be at the state, regional and local level, because of the diversity of rural areas and their unique needs.
7. Local initiatives to decrease response times should include the development of a network of strategically located first responders with private vehicles for response.

8. Private and public sector efforts and resources should be combined to provide business management education for volunteer organization leaders. State small business offices, community colleges and private ambulance companies could be key organizations within states to carry out this function.
9. A total re-evaluation of the National EMT curriculum should be undertaken, using a multidisciplinary team of experts to determine the value of course content and skills on patient outcome. In order to keep training requirements at an acceptable level for volunteers, courses should be redesigned to provide students with only the essential knowledge and skills which provide patients with the greatest **benefit** in terms of outcome. Optional modular training programs which already exist for such programs as farm rescue, water rescue and extrication need to be compiled in one source book.
10. Data collection at the local and state level should be encouraged. Patient outcome studies, both retroactive and concurrent, need to be performed. Results should direct curriculum redesign targeted at providing the essential knowledge and skill base needed to obtain desired patient outcomes.
11. State and local governments need to be encouraged to take more responsibility for EMS planning and design. In the planning process, tertiary resource hospitals should be encouraged to provide linkage support to rural hospitals and physicians.
12. Rural family practice physicians should receive assistance from State EMS departments in learning their role and responsibility as a medical director.
13. Incentives should be developed by State offices to encourage strong medical control in the EMS systems in rural areas.
14. Nationwide campaigns for EMS community education could be undertaken with federal and state resource material made available to communities. Legislation could be developed which would require that local telephone companies place local emergency numbers on their pay phones.
15. Federal and state tax incentive programs should be developed to help offset the personal expense incurred by volunteer EMS providers
16. Business and personnel management training programs for volunteer EMS organizations could be developed with federal funding and provided to volunteers through State EMS offices.
17. State EMS offices could provide resources to assist volunteer EMS personnel to become educated about the legislative process so they can be more effective in obtaining government support.
18. A national clearing house for EMS information and resources needs to be established, such as exists for the State EMS Directors.

Glossary

- advanced life support - level of care which involves invasive types of procedures such as starting intravenous lines, inserting airways into the trachea, injecting drugs and administering electric shocks to the heart.
- ambulance agency - a transporting unit that carries personnel and equipment to the scene of an emergency and transports patients to a medical facility. Ambulance agencies can be classified as basic life support or advanced life support.
- basic life support - level of care which involves stabilization and non-invasive techniques such as mouth to mouth breathing, positioning of the body, splinting of extremities, applying pressure to bleeding points, etc.
- clinical training - training which involves learning those skills which require actual “hands on” care of patients; usually obtained in a hospital setting or on an ambulance.
- didactic training - classroom training, including lecture, discussion and demonstration on manikins.
- EMT-basic - an individual who has typically been trained for 114 hours or more under the Department of Transportation Standardized Curriculum and certified by a state agency.
- EMT-defibrillation - additional training which EMT-basics undertake to allow them to perform defibrillation on patients in cardiac arrest.
- EMT-intermediate - an EMT who has specific training in advanced life support techniques, but not the extent of the EMT-paramedic; usually requires a direct physician order to perform advanced level techniques.
- EMT-paramedic - an EMT who has received extensive training in advanced life support procedures and who usually can perform these skills under standing orders from a physician director.
- first responder - individuals who are trained for approximately 40 hours and who arrive first at the scene and provide basic first aid and stabilization techniques for the patient until the **EMTs** arrive.
- first response unit - a non-transporting, non-ambulance response unit (fire truck, private care or other mode of transport) that provides personnel and equipment response to the scene to provide care to the patient until the ambulance arrives.
- mutual aid agreement - defines the process of reciprocal emergency response by personnel and equipment to an area which is outside their jurisdictional area of coverage.
- primary care - beginning or basic level of care found in the community setting and **includes** initial evaluation and treatment of patients as provided by a physician and the local hospital; it does not **include** specialty care.
- rescue vehicle** - usually refers to a vehicle which carries emergency equipment (usually also includes heavy rescue equipment) and personnel to the scene but may not provide for transport of the **patient**.

run sheet - a written report of the emergency call, including statistical information such as time of call, patient name, address, location of call, arrival and departure times, etc. as well as patient evaluation and treatment information.

skills training - training to perform specific technical skills such as starting an intravenous line or inserting an airway; requires simulated practice on manikins or actual performance of the technique on a patient.

standing orders/protocols - written menus or directives allowing the EMS providers to initiate care without speaking directly to a physician for orders.

telemetry - the transmission of a cardiac rhythm strip (record of heart electrical activity) from field **EMS** personnel via radio to the physician, usually located in the hospital.

tertiary care - the **highest level of care available, involving** the use of sophisticated **technology** and equipment; usually found in major metropolitan hospitals and universities.

trauma center designation - a process which identifies hospital capabilities to handle emergency trauma victims. There are three levels, with level I being the most sophisticated and having capabilities to perform immediate surgery 24 hours a day.

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STATISTICS OF AREAS STUDIED

ALABAMA (EMS Budget is \$.10 per capita)

COUNTY	LAND AREA	POPULATION est 1988	POPULATION proj 1993	PER CAPITA INCOME '88
Cleburne	561	13,200	13,500	\$ 8717
Clay	605	13,400	13,100	\$ 6829
Coosa	657	11,500	11,500	\$ 9033

WASHINGTON (EMS Budget is \$.34 per capita)

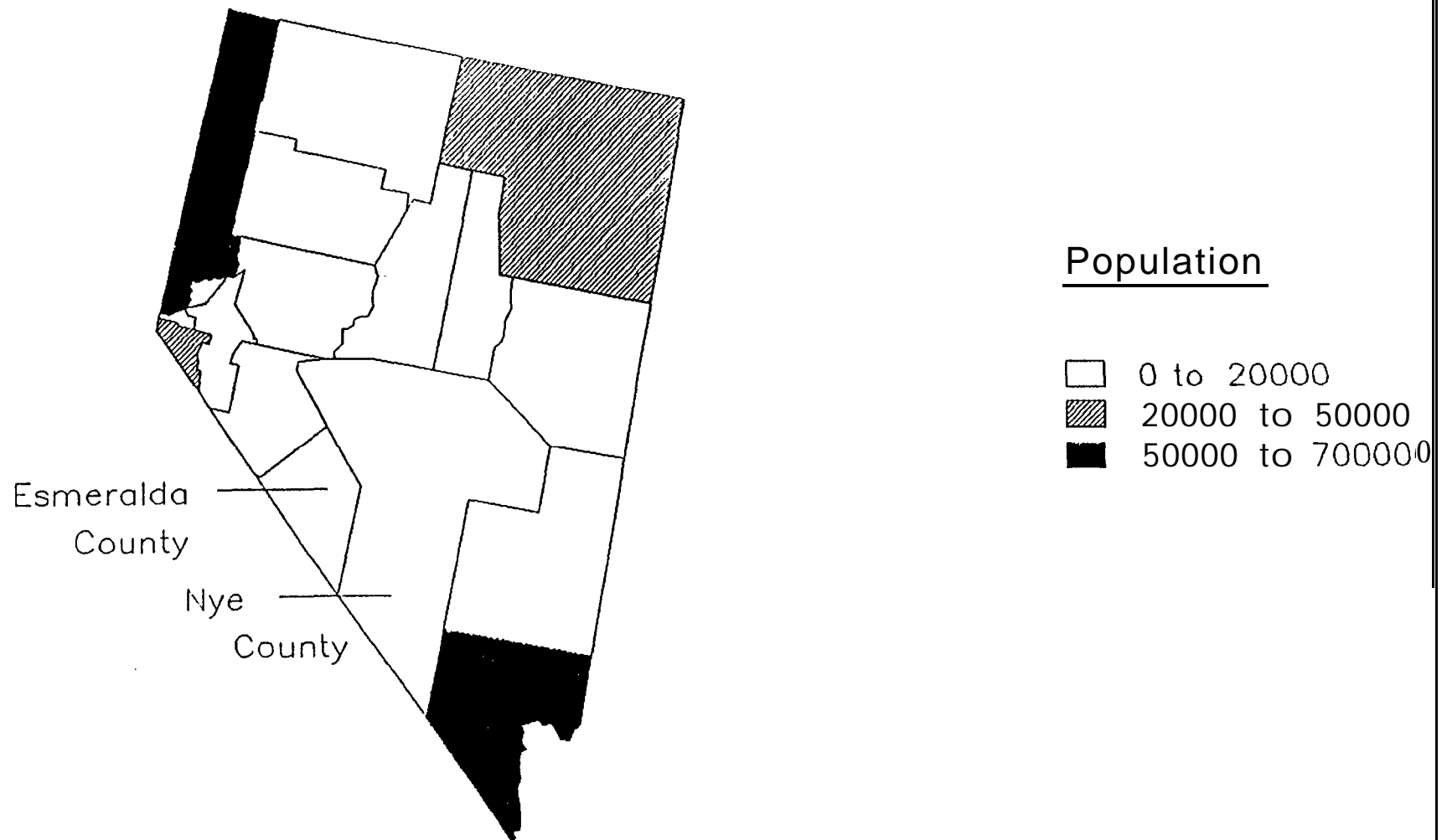
COUNTY	LAND AREA	POPULATION est 1988	POPULATION proj 1993	PER CAPITA INCOME '88
Pend Oreille	1400	9000	9100	\$ 8,305
Spokane	1762	357,300	363,000	\$10,731
Stevens	2470	32,000	33,200	\$ 9,237

NEVADA (EMS Budget is \$.38 per capita)

COUNTY	LAND AREA	POPULATION est 1988	POPULATION proj 1993	PER CAPITA INCOME '88
Nye	18155	15,900	18,800	\$10,884
Esmeralda	3587	1,200	1,400	\$10,153

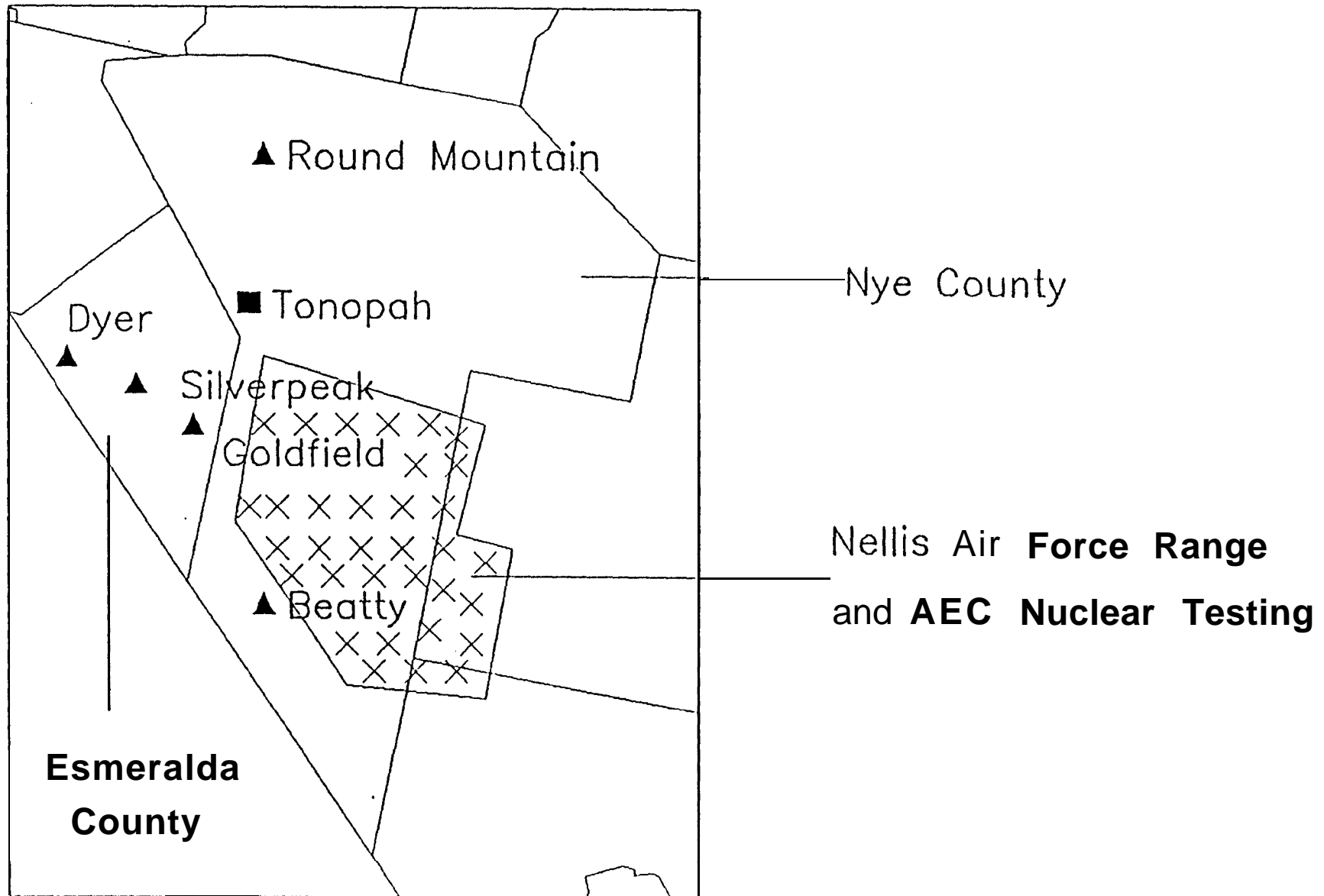
NEVADA

EMS Study Sites



NEVADA

Cities/Towns in Area Studied

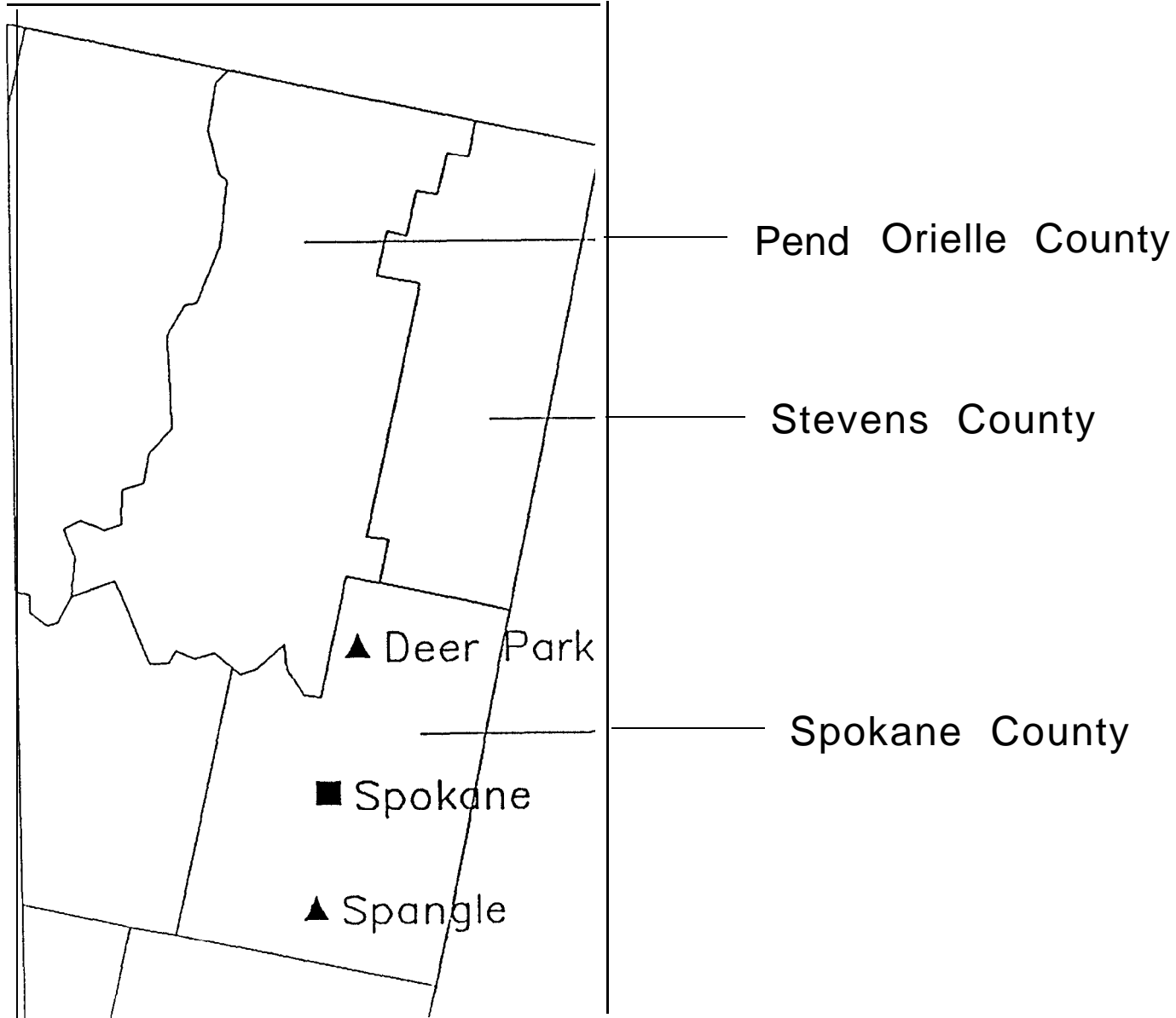


WASHINGTON EMS Study Sites



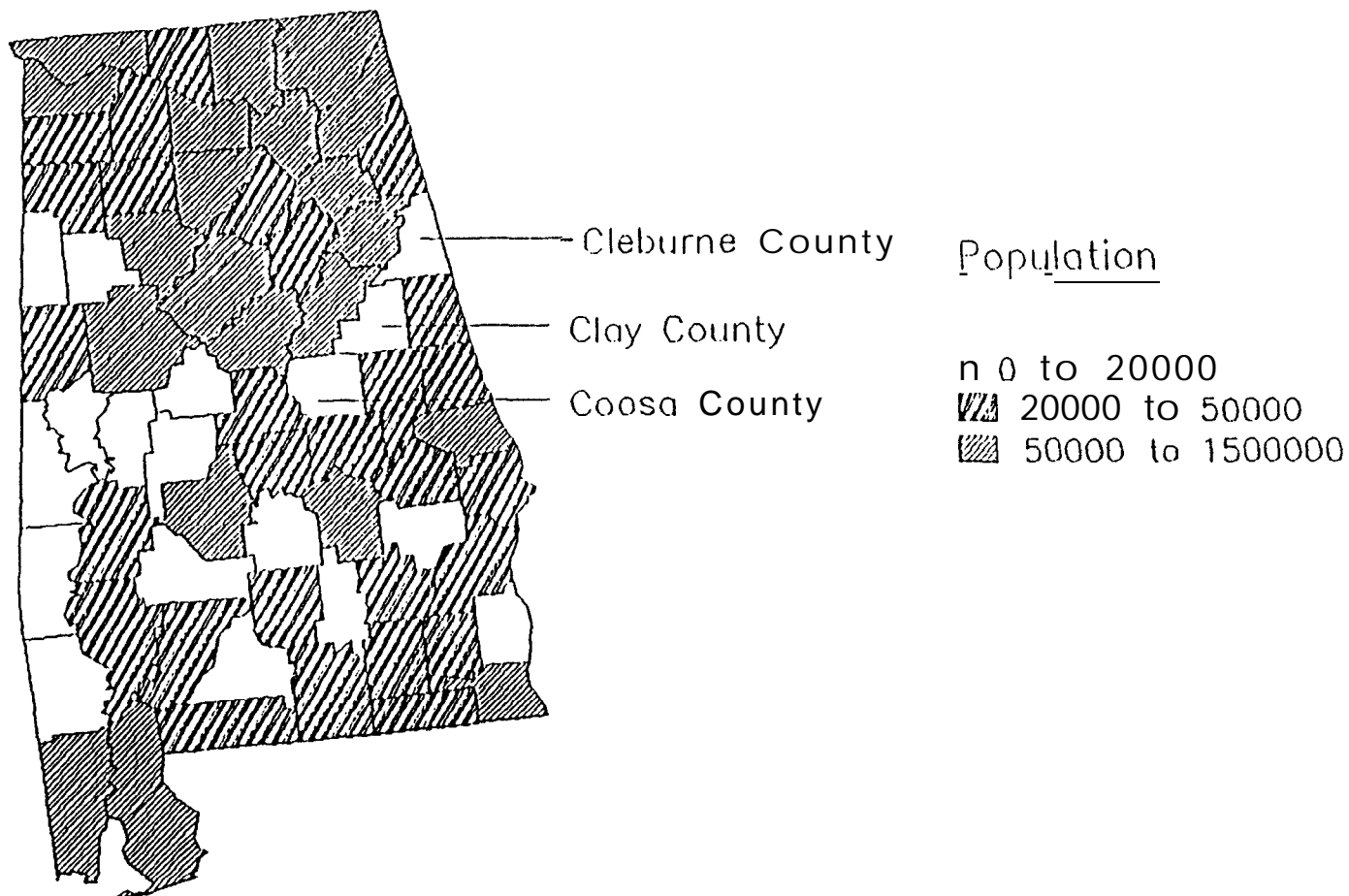
WASHINGTON

Cities/Towns in Area Studied



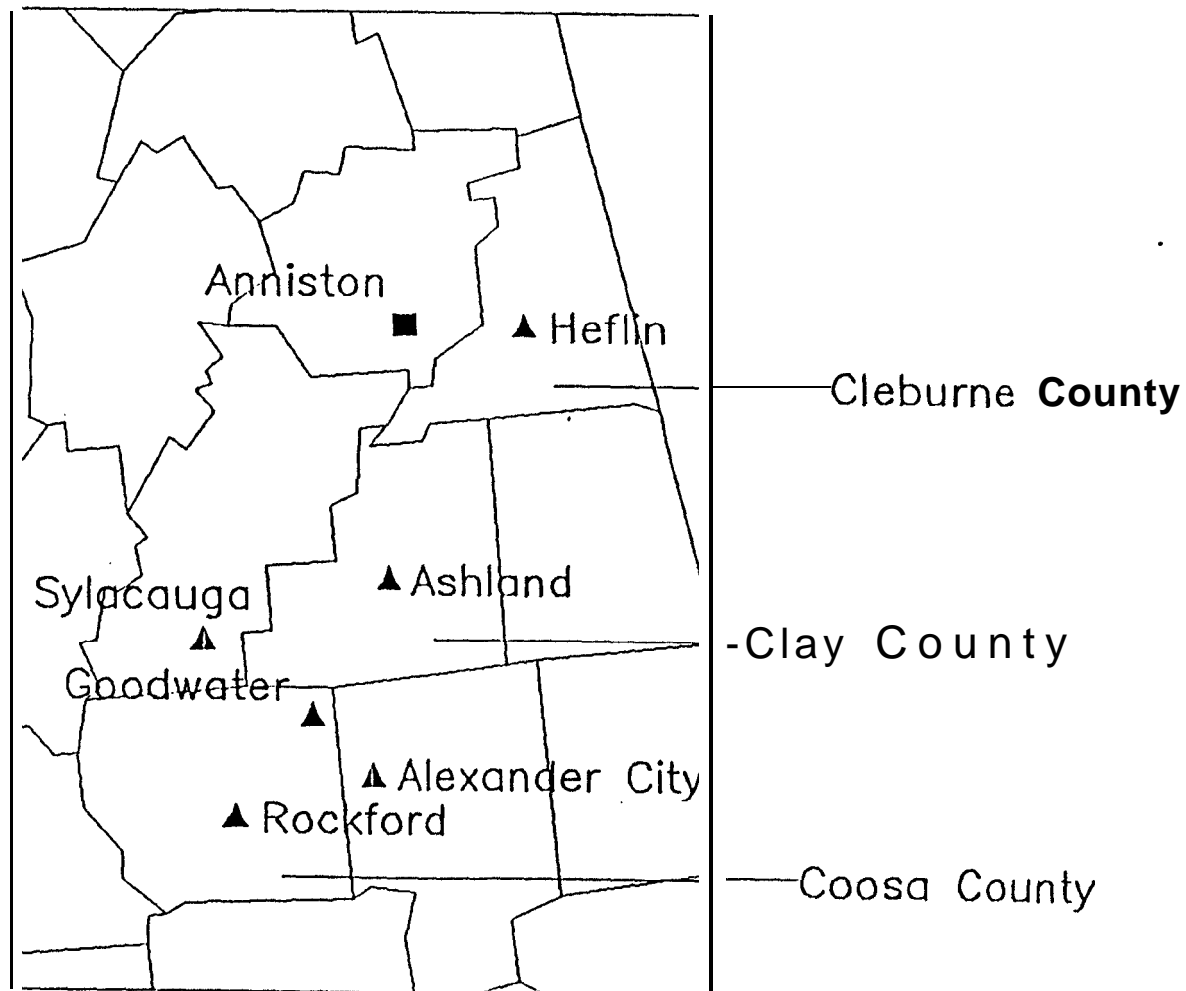
ALABAMA

EMS Study Sites



ALABAMA

Cities/Towns in Area Studied



Office of Rural Health Policy Project

Contractor: National Rural Health Association

Project: Development and Operation of EMS **Services** in Rural
Areas: A Study to Identify and Evaluate Barriers

SURVEY INSTRUMENT

Site Location:

Contact Person:

Individuals to Meet With:

Director(s) of EMS **Agency(ies)**

Local Fire Department Officials/volunteers

Local Police Officials/personnel
(including state patrol)

Local Dispatching Agency Officials/personnel

Medical Director of EMS Agency

State EMS Director

Hospital **Administrator** of Primary Referral Center

Hospital ER Director of Primary Referral Center

Hospital MD of Primary Referral Center

Local Public Officials such as major, city manager, etc.

Local sample citizens (determined by surveyor during
site visit - no scheduled meeting required)

ER Director of Tertiary Referral Center

MD Director of Tertiary Referral Center

Personnel from Other Interfacing Agencies

Demographics

- geographic area covered (include map, **square** mileage)
- population size, density, age **distribution**, growth rates
- land-use characteristics, rural/urban patterns,
- major industries, schools, highways
- major recreation areas
- terrain water, mountains, mines, special hazards
- other information available which is descriptive of the area)

Funding

operating budget
donations
county
state
grants
subscription
fee for **service**
do they bill; at what rate
collection rate
community fund raising programs
other sources

Agency Organizational Structure

infrastructure **components**
formal structure and informal structure
is agency incorporated
how are officers **elected/chosen**
how are new members admitted

Agency Personnel

number of personnel and age distribution
level of training
recruitment program and turnover rates
adequate numbers of personnel
any benefits provided for volunteers
pay or reimbursement to volunteers for service
how are personnel licensed
work schedules; respond to calls from employer's location
methods for dealing with stressful calls
screening/admission criteria for EMS service

Communications

- emergency access methods; multiple numbers versus a **universal** number;
- communication equipment used
- emergency **dispatch** facilities and procedures
- direct **communication** with local medical facilities

Training:

- what level of training provided
- where is initial and ongoing training done
- who provides the training
- what schedule does the training follow
- who pays for the training
- what are certification/recertification requirements
- what are CE procedures and requirements
- do **volunteers** commit to service time in exchange for training

Medical Control

- standing orders
- medical policies and procedures
- quality assurance program/chart review
- patient follow-up
- control issues at hospital (capabilities of field people versus **hospital** based personnel)
- is medical director paid
- how active is medical director
- has medical director had training to be a medical director for EMS
- board certification and special training

EMS System Design

- first response components including personnel and equipment used
- interagency arrangements both formal and informal
- transport and rescue vehicles; placement and use strategy: age: replacement plan
- receiving facilities locally and **tertiary;capabilities**
- community knowledge of system; interest level and support
- response and transport times
- number and types of calls
- number and level of personnel on calls
- any studies showing patient outcomes
- copy of state and/or county EMS regulations
- how are ambulances/services licensed
- mutual aid agreements

- EMS council
- other health facilities in area
- regional EMS system plans/goals
- relationship and reporting channels to state
- **how are** routine transfers handled versus emergency calls

Evaluation of State EMS System:

- regulations and policy
- resource management
- manpower and training
- transportation
- facilities
- communications
- evaluation
- public information and education
- medical control
- trauma systems

Other Pertinent Items Please Add

National Rural Health Association

Rural EMS Needs Workshop 1989

SUMMARY OF NEEDS

SYSTEMS:

1. A clear and consistent definition of an **"EMS System"** and its components needs to be determined.
2. A resource information network needs to be developed for rural EMS.
3. **Physicians** acting as medic31 directors for EMS systems, and who are the coordination people between pre-hospital, hospital and **inter-hospital EMS** care, need to be better prepared to deal with the responsibilities of the job.
4. **Creative** transportation systems need to be developed to provide for more timely transport of victims.
5. Medic31 control consensus standards and guidelines need to be developed nationally.
6. Interagency relationships and mutual aid agreements need to be developed in **rural areas**.

TRAINING:

1. The **various levels** of **EMT** curriculum (didactic and clinical skills) needs to be evaluated to determine if they appropriately prepare students for the functions they perform.
2. Training programs for **pre-hospital**, hospital and clinic personnel need to be more accessible to rural communities.
3. A consensus standard needs to be developed for **measuring quality** assurance in **EMS** training programs.
4. Specialty topic training programs already developed need to be identified and incorporated into the EMT curriculum as optional modules.
5. Management training programs need to be provided to **rural EMS** service managers.
6. EMS Instructors need to be informed of the special techniques and educational tools which can be used to teach **atypical** student groups.
7. A more effective process for recruitment and retention of **EMS** instructors needs to be developed.

Proposal for the Emphasis of Essential Life Support Skills in Prehospital Care

Introduction

Abundant advanced life support skills are concentrated in our major urban areas where transport times are often short. In rural areas, however, where transport times are longer, our prehospital personnel frequently lack training in essential IV and airway skills.

Emphasis of Current Training

Much of the basic EMT training curriculum deals with medical emergencies and conditions for which their ability to intervene, other than timely transport, is extremely limited. We should consider greater emphasis on training in areas where prehospital care matters most. Field interventions such as IV and airway skills should be emphasized.

Much of our state is dependent on volunteers to provide emergency medical field care. Our volunteers make a considerable sacrifice to achieve initial training. Current requirements for initial training and recertification present considerable obstacles to the acquisition of these valuable skills. Volunteers must frequently travel long distances to receive training and many of our hospitals have been increasingly reluctant to provide it.

In addition, volunteers and even our paid professionals are increasingly reluctant to achieve additional merit badge training because of the necessary time required.

Reevaluation of Current Training Requirements

We should consider a more practical approach to the initial training and recertification requirements for IV and airway skills.

For example, Endotracheal Intubation:

Training could be based primarily upon maniken experience which can be made available in rural areas and recognizes the scarcity of human bodies for practice.

COMMUNICATIONS:

1. A process for planning **and** coordination of **EMS** communications needs to be defined.
2. **EMS** communications equipment deficiencies need to be corrected.
3. EMS dispatcher training needs to be provided for **all** individuals functioning in the capacity of **EMS** dispatcher.
4. Public **access** needs to be standardized nationally and public information, education and awareness programs need to be developed and implemented.

FINANCE:

1. **Federal**, state and **local** financing of **EMS** needs to be expanded.
2. Financial management practices in rural services need to be improved.
3. Diversification strategies and networking activities need to be implemented **among** rural EMS agencies.
4. The inequitable I-ICFA reimbursement for rural transport services needs to be corrected.

MANPOWER:

1. Effective tools for recruitment of **volunteer** EMS personnel need to be developed.
2. Incentives for retention of volunteer personnel in rural **EMS** services need to be developed.
3. Efficient methods for utilization of the current volunteer pool need to be identified.
4. Occupational health support programs need to be developed for rural EMS personnel.
5. Programs need to be developed to reduce the problems associated with inadequate risk management in rural EMS services.

Indications for intubations could be restricted to the most critical patients for whom ALS would otherwise be a long time away and whose progress without these interventions would be extremely grave.

A reasonably short time frame for attempting the procedure would be established and if unsuccessful, ventilation could proceed according to basic training.

Adjuncts such as lighted stylets and CO₂ valves could be used to increase the likelihood of proper tube placement.

An ongoing monitoring of performance would provide valuable feedback and give further direction to initial training and skill maintenance requirements.

Summary

In particular, regarding trauma care, the category of prehospital care personnel adequately trained is very limited outside our major metropolitan areas. Medications other than oxygen are rarely needed in the field to care for trauma patients. We should endeavor to increase the numbers of our TRAUMA TECHS. particularly in areas long distances away from our hospitals where full care is most important.



American College of Surgeons

Fact Sheet on Trauma

What Is Trauma?

- Trauma is the medical term for injury.
- About three-fourths of all injuries are caused by mechanical forces (e.g. vehicle crashes, falls, sports injuries, shootings).⁵
- injuries also may be caused by acute exposure to physical agents such as heat, electricity, and chemicals in amounts that exceed human **tolerance**, or a sudden lack of an essential agent such as oxygen or heat.

Severe Injury Is a Leading National Health Problem.

- **In the U.S.**, one death in every 12 is the result of injury.⁵ Severe injury is the leading cause of death up to age 44, and up to age 34 it kills more people than all other diseases **combined**.¹⁴
- More than 140,000 Americans die from injuries each **year**.⁷ Automobile accidents are the leading killer, causing approximately 50,000 deaths **annually**.¹⁷ Other prominent causes include firearms, falls and jumps, drownings, poisonings, and fires and burns.¹⁴ About 50,000 of these deaths result from violent crime, and about 10,000 occur on the job.⁹
- Every six minutes, an American **dies from an accidental injury**, and every four seconds an American suffers a disabling injury.
- In 1980, injury resulted in **99 million physician visits**, as opposed to 72 million for heart disease and 64 million for respiratory problems. **In addition**, it is estimated that over 25% of all visits to hospital emergency departments are for the treatment of **injuries**.^{3,10}
- Accidental injuries cost the nation \$133.2 **billion** in 1987 due to lost wages, medical expenses, insurance administration costs, property damage, and indirect **costs**.¹⁷ Motor vehicle injuries alone, which account for little **more than one-third of all accidental injuries**, **cost the nation** more each year than any class of disease other than **cancer**.¹³

The Impact of Trauma Is Most Severe on the More Vulnerable Segments of Our Population—Children, the Elderly, and the Poor.

- Trauma is the number one killer of children, causing more than 10,000 deaths each year in **children under 14**,³ and causing nearly four-fifths of the deaths that occur between ages **15 and 24**.¹⁴ The leading causes of pediatric trauma are motor vehicle accidents, drownings, fires and burns, firearms, and falls.³
- Trauma victims over the age of **65** have a mortality rate that is 89% higher than victims under 65, regardless of the severity of the injury.¹¹ The death

rate from injuries is highest for those aged **75 and older**, and for ages **75 to 84 it is more than double the rate** for all ages **combined**.⁵

- Socioeconomic status can influence the likelihood of injury. For example, homicide, assaultive injuries, pedestrian fatalities, and housefire deaths are high among the poor. High risk jobs, low quality housing, older cars, and hazardous products such as space heaters also tend to be concentrated among poorer **people**.¹⁴ For both unintentional injuries and homicides, the death rate in low income areas is over twice the rate found in high-income areas.⁵

Accidental Death Rates Are Especially High in Rural Areas.

- **The** death rate from accidental injuries in most rural areas is over twice the rate for the largest cities.⁵ Almost two of every three deaths involving motor **vehicles** occur in rural **areas**.¹⁷
- Although farm workers constitute only 4% of U.S. workers, 38% of all machinery-related deaths occur on **farms**.⁵
- Annual agricultural and mining death rates are approximately 50 deaths per 100,000 workers, compared to 11 per 100,000 for all industries combined. These figures, based on an estimated 1,600 **agricultural deaths**, do not include the approximately 300 **children** who are killed each year while engaged in farm-related **activities**.¹⁵
- An estimated 170,000 disabling injuries occur on farms each year. Nearly **half** of all survivors of serious farm trauma are permanently **impaired**.¹⁵
- Factors commonly cited for the high injury death rate in rural areas include transportation difficulties, long response time for emergency personnel, and the lack of integrated trauma systems.¹³

What Is a Trauma System?

- Trauma systems operate on the principle **that people** with severe injuries require special medical capabilities if they are to have their best chance of recovery, and it is therefore inappropriate to simply transport severely injured patients to the nearest hospital without regard to the level of care available.
- A trauma system is composed of four primary **patient components**:²
 - Access: Technological elements, such as communications equipment, emergency telephone systems, and radio frequencies for emergency medical services communications, as well as public education programs ensure access to care.

A Checklist for Your EMS System

Are emergencies promptly reported via a toll free, 24 hour, all purpose telephone number such as 911?

Are citizens trained in first aid, the obstructed airway techniques and cardiopulmonary resuscitation (CPR)?

Are public safety responders trained in first aid, crash injury management and CPR?

Are ambulance personnel trained in Basic Life Support to the EMT level as recognized by the National Registry of EMTs?

Do ambulances meet Department of Transportation standards and do they carry equipment recommended by the American College of Surgeons and the National Academy of Sciences?

Are there two-way voice communication linkages between hospital emergency departments and ambulances? Public safety responders, hospitals and ambulances? All hospitals in the area?

Is there a physician present in the hospital emergency department 24 hours a day?

Are emergency department nurses and physicians specially trained in emergency medicine?

Are hospitals identified according to their capabilities and critical patients transported to the hospital that can best provide care for their injuries or sudden illness?

Is your EMS system subject to at least quarterly review and evaluation to measure its successes and to improve on its weak points?

Are patient care records initiated by ambulance personnel and transferred with the patient through all phases of the care?

Are skill levels of all personnel regularly updated and continuing education classes offered at regular intervals.

Do mutual aid agreements exist with other emergency medical services in neighboring towns to "cover" while local ambulances are on call or involved in patient transfers?

Is medical control from a recognized hospital a function of your ALS system?

(List taken from A Community Development Guide for Emergency Medical Services in Oklahoma).

DISTINGUISHING CHARACTERISTICS OF SERVICE SETTINGS

PARAMETER	URBAN	RURAL	FRONTIER
Driving time	less than 30 minutes	30 minutes	60 minutes or severe geographic & climatic conditions, especially seasonal
Staffing	Gate Keepers and specialty teams	Generalist, usually a physician with possible assistance from mid-level practitioners	Practitioner teams, mid-level practitioners
Population Density	More than 100/square mile	More than 6, but less than 100/sq mile	Less than 6 per sq mile
Scale	Large group practice	Small group practice	Pair, solo, or intermittent
Hospital	Large, usually 100 or more beds/facility or satellite	Small 25-100 beds may have swing beds	25 beds or less, or no hospital
Technology	High level of technology, easy access	Medium level of technology, easy to moderate access	Low level of technology, difficult access
Skill range of provider	Specialist	Generalist with distinctions, specialist consultation	Extreme generalist, infrequent specialist consultation
Intensity of practice	High utilization	Moderate utilization	High standby capacity
Social Organization	Individual anonymity, accepts help readily, greater dependency	Personal, group relationships, self-reliant, interdependency, accepts help reluctantly	Personal relationships, self-reliant, resists seeking help

MINIMUM RECOMMENDED HEALTH SERVICES

POPULATION/ SERVICE AREA	EMS	PRIMARY CARE	SPECIALTY CARE	HOSPITALIZATION
less than 500	First Responder EMT B-P	Intermittent MLP or MO by appointment Satellite/part-time clinic; EMT supervision via telecommunication and written protocol	Referral	Referral
500-900	EMT B-P First Responder network in outlying areas	Full-time MLP or part-time MO; arrangement for emergency coverage and EMT supervision	Referral or periodic arrangement in the community	Referral
900-1500	EMT BP First Responder network	Full-time MO or MLP, or combination full and part-time group practice; emergency coverage and EMT supervision	Referral or periodic arrangement in the community	Referral and infirmity model
1500-4000+	EMT 9-P First Responder network	Small group practice; combination of MO and/or MLP; medical specialists (MO/MLP); IM, PEO or OB, CNM as determined by community need; emergency coverage and EMT supervision	On-site full-time regularly scheduled clinic within primary care practice, or referral	Small community hospital or infirmity referral

and

Maine Sunday Telegram

Ambulance services scramble to survive

By Anne Hyde Degan

RUMFORD — These are troubled times for the small rural ambulance services that are the backbone of emergency medical care in much of Maine.

Across the state, a critical shortage of volunteers and soaring operational costs threaten to close the doors on small volunteer and private ambulance services.

The problem is so acute that towns are being forced to spend far more money and look for new ways to work together in order to guarantee ambulance service to their residents.

For both private and volunteer services, a multitude of problems are blamed:

- The failure of Medicaid and Medicare to pick up the full cost of transporting patients.
- Skyrocketing workers' compensation and malpractice insurance costs.
- Increasing liability insurance costs.
- A sharp decline in volunteerism and a high rate of volunteer burnout.
- More sophisticated training and certification requirements for emergency medical technicians.
- The high cost of equipment (stripped ambulances can run as high as \$60,000 to \$80,000).
- A 40 to 60 percent "deadbeat" rate — those who can't or won't pay the bill.

Central Maine woke up to the crisis almost overnight when Keegan Ambulance Services Inc., once one of the largest and most successful private ambulance services in the state, suddenly announced that it was going out of business and would close up shop by April 15.

The end came so fast that about 30 Maine towns and cities covered by Keegan's four separate branches — in Farmington, Madison, Presque Isle and Rumford — were left without ambulance service. Keegan filed for Chapter 11 bankruptcy last month to buy some time until the towns could find alternative services.

Eleven western Maine towns, once served by Keegan's Rumford branch, are negotiating a first-of-its-kind, five-year agreement to band together and form their own ambulance corps to serve the 19,000 residents of the area.

The deal signals a trend that state and local officials say could become the answer for many troubled rural ambulance services.

But the agreement won't come cheap. It will cost

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Staff photo by Jack Milton

Beth McCarthy with AMPS ambulance in Phillips: "If you give up there's not going to be anything for your community."

Ambulances

Continued from first page this section

the towns about \$143,000 a year, at least twice what the towns were paying in subsidies to Keegan. The towns plan to purchase Keegan's used equipment and incorporate to operate their own service.

"There is widespread agreement that higher town subsidies and multi-town services are fast becoming a necessity to beat the cost of providing service in rural areas.

"We're a town of 2,300 to 2,400 residents. It would be cost-prohibitive to do it on our own," said Marshall Holman, chairman of the Dixfield Board of Selectmen. Still, Dixfield hasn't decided whether it will go along with the agreement (see box).

"It's an important issue, and Keegan is just one symptom of the changing times," said William Gates, a former branch manager for Keegan who is working with a committee made up of representatives from each of the towns.

"It's a situation where the ambulance provider, unless he has a high volume of calls and low overhead, is going to feel a pinch. We've felt that pinch and we've decided that we can't continue," said Clarence Keegan, vice president of Keegan's.

A cap on Medicaid and Medicare payments for ambulance calls takes the highest toll on private ambulance services, Keegan said. Medicaid allows only \$47.50 per call, while the real cost can be as high as \$227 every time the ambulance rolls, Keegan said.

Medicare pays about \$75 a call. There haven't been increases in the allowable limit that can be charged to Medicaid and Medicare in at least four years, although costs have steadily increased, Keegan said.

Workers' compensation increased 20 percent a year during that time, while malpractice insurance jumped 25 percent annually, he said.

Keegan says his company also suffered by trying to provide advanced life support, the highest level of pre-hospital care, in a low-volume area where the bulk of the calls are emergencies rather than more profitable routine transports.

"It's uniquely a problem in your rural areas. Rural areas are coming to expect advanced life support. I don't think things will get better until the entire third-party system (Medicaid and Medicare) addresses the real cost of ambulance service in a rural area," Keegan said.

"We went in a few years from very successful, probably the most successful private ambulance service in the state of Maine, to nothing. There are only 10 advanced paramedic services in the state. We had four of them. The others are in your more urban areas like Portland, Lewiston and Waterville," Keegan said.

The crisis facing ambulance services throughout the state hasn't gone unnoticed by the Maine Emer-

gency Medical Services office, which oversees the 220 licensed ambulance and first-responder services in the state.

But the agency's primary responsibility is in licensing and regulating ambulance services, and it has so far not been in the business of plotting out a statewide strategy to cope with the problems.

According to state EMS figures, of the 185 ambulance services operating in the state, 123 are operated by volunteers. The majority of the others break down into the categories of municipally run services, non-profit private services and for-profit services.

"In the mid- to late-1970s we had an abundance of people. But with the return to work by the female work force and with gas prices, volunteerism took a beating and has never recovered," said Hamm Rogers, training coordinator with the state EMS office in Augusta.

Rogers said he handles at least two or three calls a week from volunteer services that need help in finding more volunteers.

Some say state regulations are the reason volunteers no longer have the time or inclination to make the commitment.

But Rogers said the argument doesn't wash. "We attempt to make the rules as easy to work with as possible, but we have to make sure there is a standard of competence on the streets," Rogers said.

Last year, in response to the needs of volunteer organizations, the state relaxed some of its requirements. Now, emergency medical technicians must be

recertified only every three years, rather than every two years.

The lack of volunteers means "there are going to be more paid services cropping up, with towns joining together to form a combination of paid and volunteer services, or regionalization," Rogers predicted.

Still, he adds, "there is a lot of old-timer pride that keeps communities from closing up until they absolutely have to."

Being there for the community

"You just kind of feel that if you give up there's not going to be anything for your community, and that kind of keeps you going," said volunteer Beth McCarthy, who has been struggling for years to keep the AMPS ambulance service afloat in the wake of a critical shortage of community volunteers.

AMPS answers about 120 emergency calls a year and covers the central Maine towns of Avon, Madrid, Phillips and Strong.

"The next few years, I think, will really tell the tale," said McCarthy, who believes the state should step in and study the system and offer some organizational and management help to small towns looking for a solution.

"There's not a lot of organizational support. It's trial and error," McCarthy said.

Until this year, AMPS had asked for only minimal town subsidies: \$500 from each of the four communities. This year the request jumped to \$25,000, with most of that going toward the salary of a full-time director to work days.

Eleven towns face decisions

DIXFIELD — In the next couple of weeks, town meeting voters in 11 western Maine towns will decide the fate of a proposal to purchase used ambulance equipment from bankrupt Keegan Ambulance Services Inc. and form a non-profit regional ambulance service of their own.

Residents of Rumford, the largest town, will take up the matter at their June 6 annual town meeting, the last of a string of town meetings that will decide the outcome.

"It isn't a reality yet, but I think it probably will be," said Marshall Holman, chairman of the Board of Selectmen in neighboring Dixfield.

Although there is optimism that the deal will work, all eyes are on Dixfield, which has been the least enthusiastic about the proposal. The town's participation could be critical since it generates

about one-third of the ambulance calls in the region, largely from the Dixfield Nursing Home.

Holman said selectmen have taken a "wait and see attitude" until they have had a chance to explore all the alternatives.

He said selectmen are expected to make a recommendation to voters and schedule a special town meeting after they meet Monday night to hear a competitive proposal from Delta, a private hospital-run ambulance service based in Waterville.

"We just want to explore all the alternatives before going along with any one thing," Holman said.

The towns have until early June to decide whether to accept the deal. The service is expected to be up and running by July 1.

The combination of paid and volunteer services, increased town subsidies, regionalization and possibly even county services are the wave of the future, according to McCarthy. "Maybe the days of each community trying to do their own service are gone. Maybe it's an obsolete structure, so what comes next? I'm not sure," McCarthy said.

It is a similar story in many Maine communities. Several months ago, volunteers for Peninsula Ambulance Corps in Blue Hill warned that the service would close its doors for good unless more volunteers could be found. The same calls for help have come from the volunteer-short Tremont/Southwest Harbor nursing association that runs the ambulance service in those coastal towns.

Several small first-responder organizations, such as those in Fayette and Monson, have had to disband in rural parts of the state because of a lack of volunteers, according to Rogers.

"It takes a shock to wake people up," said David Beckwith, a Keegan branch manager in Madison who plans to operate the newly incorporated Central Ambulance Service to serve Madison and Anson, another area that was left without service when Keegan went out of business.

But as evidence of the changing times, Beckwith's service will be subsidized to the tune of \$50,000, about \$20,000 more than Keegan received in town subsidies.

"The towns that we're dealing with are definitely enlightened by the circumstances of the last year. They are willing to pay for the service and to do so with a smile," Beckwith said.

More money from towns

Madison Town Manager Richard Michoud agrees that towns can no longer expect quality service without upping their subsidies. "There is no doubt in my mind that in order for them to make a go of it they will require additional subsidies," he said.

Madison alone is paying \$10,200 more than it paid to subsidize Keegan last year. To replace Keegan's service in Farmington, that town recently signed a contract with the private, hospital-run Delta service based in Waterville at triple the cost.

It is a tough pill to swallow for Keegan. "As a private company we were careful and cautious in our requests for increases in subsidies from the towns because of the stigma of a private company being subsidized by the public," Keegan said.

"A lot of people will benefit indirectly from the causes of our calamity," he said.

Anne Degan is a freelance writer who lives in Hancock.